

BOSTON
MEDICAL LIBRARY
8 THE FENWAY





MISSOURI STATE MEDICAL ASSOCIATION

VOLUME 41 NUMBER 1 JANUARY, 1944

PER YEAR, \$3.00 SINGLE COPY, 40 CENTS

ORIGINAL ARTICLES

Physiologic					
M.D., St.	Louis	• • • •	• • • • • • •	• • • • • • • •	• • • • • • •
Valvular Ch	olecvstogas	tros	stomy. E	xperimer	ntal Ob-

servations. J. M. McCaughan, M.D., and H. K. Purcell, M.D., St. Louis

Syphilis.	Five-Day	and	Other	Treatments.	Arthur
M.D., S	St. Louis .				

Syphilis. Five-Day		
W. Neilson, M.D.	, St. Louis .	 ••••

- Abstracts and Digests—
 - Allergic Reaction in the Gallbladder 18
 - (Continued on Advertising Page 5)

MILWAUKEE SANITARIUM

7

WAUWATOSA, WISCONSIN

FOR NERVOUS DISORDERS

Maintaining the highest standards for more than a half century, the Milwaukee Sanitarium stands for all that is best in the care and treatment of nervous disorders. Photographs and particulars on request.

(Chicago Office—1117 Marshall Field Annex Wednesday, 1-3 P. M.)

LLOYD H. ZIEGLER, M.D.
JOSEF A. KINDWALL, M.D.
WILLIAM T. KRADWELL, M.D.
MERLE Q. HOWARD, M.D.
CARROLL W. OSGOOD, M.D.
ARTHUR J. PATEK, M.D.

G. H. SCHROEDER, Business Manager JAN 1

COLONIAL HALL-One of the 14 Units in "Cottage Plan."





Gastrojejunal ulcer is described as the type most difficult to treat satisfactorily. 1.

A new preparation, Phosphaljel, is effective in treating these highly resistant lesions. 2.

Phosphaljel is antacid, astringent, demulcent, pleasantly flavored. It is indicated in those cases associated with pancreatic juice deficiency, diarrhea, or low phosphorus diet.

Available in 12-fluidounce bottles. A pharmaceutical of John Wyeth & Brother, Division WYETH Incorporated, Philadelphia.

- 1. MARSHALL, S. F., and DE-VINE, J. W., Jr.: Gastrojeju-nal Ulcer, S. Clin. North America, 743-761 (June) 1941.
- 2. FAULEY, G. B.; FREEMAN, S.; IVY, A. C.; ATKINSON, A. J., and WIGODSKY, H. S.; Aluminum Phosphate in the Therapy of Peptic Ulcer, Arch. Int. Med. 67: 563-578 (March) 1941.



PHOSPHALJEL* Wyeth



UMINUM PHOSPHATE GEL

THE JOURNAL

OF THE

Missouri State Medical Association

The Official Organ of the State Association and Affiliated County Societies
Issued Monthly under direction of the Publication Committee

COPYRIGHTED, 1943, BY MISSOURI STATE MEDICAL ASSOCIATION. ALL RIGHTS RESERVED.

Volume 41

JANUARY, 1944

Number 1

RALPH L. THOMPSON, M.D., Editor RAYMOND McINTYRE, Managing Editor HELEN PENN, Assistant Editor 623 Missouri Bldg., St. Louis, Mo. Telephone, Newstead 0404-05 PUBLICATION R. C. HAYNES, M.D.

COMMITTEE R. C. HAYNES, M.D.
VINCENT T. WILLIAMS, M.D.

PHYSIOLOGIC PROBLEMS OF BURNS

ROBERT ELMAN, M.D.

ST. LOUIS

Physiologic considerations are, of course, important, but my approach will be largely a therapeutic one. The objectives that I will try to achieve in my discussion as far as therapy is concerned are:

1. To save life, i. e., to reduce the high mortality which frequently follows severe burns. I might say here that just because a patient is severely burned there is no cause for pessimism because in many of these cases the burn turns out to be part thickness (first and second degree) and therefore requires no skin grafting. It is usually worth while looking upon a burn no matter how extensive it may be as a challenge to therapeutic ingenuity as far as saving life is concerned. Very severely burned patients are severely ill and the mechanism for their treatment must be recognized promptly or death will occur within from twenty-four to thirty-six hours. I would venture to say that there have been practically no patients lost within the first week because of very meticulous attention to the physiologic considerations at the bases of the early manifestations.

2. To shorten the period of illness and get these patients up and well as soon as possible, especially when the burn is of full thickness (third degree).

The early collapse in burns is similar to shock but there are two things about shock in burns which should be emphasized. (1) The fact that the shock is due to a large extent, as is well known, to loss of plasma into the burn from tissues which have been injured, and loss of plasma from the surface of the burn due to weeping, especially over the face and in flash burns. This loss of plasma may be tremendous. (2) There are a few cases in which one cannot exclude the possibility of other factors being present, particularly when absorption from wet gangrene of the skin occurs and when severe pain is prominent. Controlling pain when it exists with adequate doses of morphine is

obviously necessary. On the other hand, morphine should not be given unless needed. A burned patient who comes in in coma or apathetic probably would be harmed by morphine rather than helped. Morphine may be given either intravenously or subcutaneously depending upon the severity of the pain. A patient in terrific pain would be benefited by an intravenous injection of morphine which could be supplemented by subcutaneous injection. On the other hand, morphine may be definitely deleterious when a pulmonary lesion is present. The dose should never be excessive because of its depressive respiratory effect. One half grain of morphine should not be given as routine, as each patient must be individualized. A good routine, when pain is severe, is to inject one sixth grain intravenously and one sixth grain subcutaneously.

As to plasma transfusions, there are two things I would like to emphasize. In the first place, treatment of the shock by plasma demands rigid priority as far as the order in which treatment is carried out. Many times I have seen patients taken to the operating room, given an anesthetic, cleansing done, dressings applied to a very extensive burn and at the end of the procedure the operation was successful, but the patient died. There is no excuse for such a mistake. The first thing a burned patient needs is treatment of the systemic manifestations and this should be done by the intravenous injection of plasma in adequate amounts and rapidly enough. I do not mean to say that the local treatment need be postponed too long, but it should not be done before systemic manifestations are taken care of. In most instances rarely more than a few hours may be needed for the treatment of shock, or it can be carried out in the operating room while the patient is being treated. A second feature regarding the injection of plasma concerns two general mistakes often made. In the first place, not enough plasma is given. A good rule in severe burns is to use at least one liter as the initial dose, sometimes two liters. In a recent severe case six liters were given within the course of a few days. Consider the ease and readiness with which one can give from 1,000 to 2,000 cc. of intravenous saline or glucose, yet many physicians do not give more than one unit (250 cc.) of plasma. This is similar in a severe burn to giving 1 or 2 units of insulin in a case of diabetes. There are certain criteria that are present which will aid one in deciding how much plasma to give. The response of the patient to the plasma is sometimes so dramatic one can tell that enough is given by the recovery from coma and improvement in respiration. On the other hand, if one has facilities for doing a red blood count, the fall in the red blood count is also another indication that one has given enough. If the red count goes up to six or seven million, it calls for another injection of plasma. In the second place, plasma is often given too slowly; in severe shock a syringe may have to be used to accelerate the speed of injection.

Before leaving the subject of shock, I would like to consider the question of pulmonary lesions. Pulmonary lesions were noticed after the Coconut Grove tragedy in Boston. These have been known for years but often are overlooked. At autopsy in burned patients the pathologist may find pneumonia. Actually, this is often due to pulmonary damage which is part of the burn. A burn from an explosion, especially in a small room, may lead to the inhalation of heated air or gases from the combustion. Two types of lesions may be produced: first, edema of the larynx, which is often evident because the patient becomes hoarse, or by the development of laryngeal obstruction demanding tracheotomy; and second, edema of the smaller bronchioles, which may result in pneumonia. There are two things to avoid if you suspect pulmonary damage: (1) The patient who has extensive pulmonary damage must be given plasma cautiously. Too much plasma in any patient with a pulmonary lesion may do more harm than good. (2) The patient with a pulmonary lesion must not be given too much morphine for fear of depressing respiration. On the other hand, with a pulmonary lesion one must be prepared to give the patient oxygen therapy and if the obstruction of the larynx is severe, tracheotomy must be prepared for.

The development of infection is a second feature of a burn which contributes to the mortality. I am going to mention only two aspects of this possibility in burns. One of them is that the incidence of infection in burns is largely due to mistreatment. In other words, it is now pretty well established that infections of burns are due to organisms which enter some time after the burns have occurred, usually because dirty material is used for first aid treatment. However, the physicians themselves are responsible for many infections because they do not maintain strict aseptic precautions in treatment of these burns. One would scarcely expose himself to an open abdominal wound without a mask, yet this often is done when a burn is treated. It has been very well established that much of the infection may be avoided by simple ordinary aseptic technic in handling of these burns. The second aspect of infections is the possibility that they may be combated by chemotherapy either systemic or local, both with the sulfonamides and more recently with penicillin which seems to have a specific effect on staphylococcus, which is fortunate because the staphylococcus infections are the ones which are not influenced very greatly by the sulfonamides.

A third physiologic consideration in the treatment of burns is concerned with the deaths that occur not in the first week, but the deaths that occur later, in the first two or three months, in patients who have had extensive burns involving full thickness of the skin in which a large granulating area is present. One sees many more of these patients now that so many more recover from the shock and from infection than in previous years. An important mechanism in these late deaths is extreme malnutrition. It used to be said that this loss of weight was due to toxemia or to a physiologic factor based on the loss of skin. However, it is now known that anorexia plays an important part and that excessive loss of nitrogen in the urine is a decisive factor. Nitrogen excreted in the urine is a measure of the amount of tissue protein the patient is losing. In one particular case it was calculated the patient was losing as much as two pounds of muscle tissue a day. Now, of course, if the patient was taking no food during that time, he could not live long; actually, this patient was big and husky, but fell away rapidly. The problem reduces itself to one of simple nutrition and it is not just one of ordering a high protein diet, because regardless of whatever diet is ordered, carefully prepared and brought to the patient, as long as the patient does not eat it, it might just as well not have been prepared. So the important problem in these burned patients is to see that they actually ingest a large amount of food in order to make up for the excessive tearing down of the tissues by the disease. This is not a nursing and dietetic problem alone; the physician must take charge himself. Perhaps a few details may emphasize this particular point.

Ordinarily a patient is said to be taking his maximum amount of protein when he is taking from 100 to 150 grams per day. Dr. Lund, of Boston, just wrote me that one of their severe cases from the Coconut Grove, who was gradually deteriorating, was given as much as 500 grams of protein in one day and for the first time in many months began to pick up and show some response to the therapy and they were finally able to skin graft him. If a patient is losing from 30 to 40 grams of nitrogen in his urine, it means that at least from 200 to 300 grams of protein in the diet is needed for replacement alone. One must give the patient as much food as he can possibly take and if he cannot take enough by mouth, it must be given by nasal or gavage feeding, or intravenously; the latter route can be used particularly with amino acids of hydrolyzed casein to supplement what the patient is unable to take by mouth. One other detail in regard to the high protein diet: Physicians should become acquainted with a few of the essentials of protein

metabolism. One must realize that if he is going to give the patients from 200 to 300 grams of protein he must give him a good protein, one that contains all of the essential amino acids. Rich beef broth which is supposed to be so strength-giving contains gelatin, which is an insufficient protein, and is like giving sweetened water as far as replacing protein is concerned. Only three commonly used proteins, milk (skimmed milk can be used in much larger amounts than whole milk), lean meat and eggs (preferably the white of the egg because the volk contains fat and the patient gets filled up much quicker). These patients need primarily protein, vitamins and carbohydrates. The vitamins and carbohydrates usually are taken care of. They usually get vitamins by injections if not by mouth. But many are dying because they are not getting enough protein; as a result they have a protein deficiency, including hypoproteinemia, and suffer one or more of the many complications which result therefrom.

600 S. Kingshighway Blvd.

VALVULAR CHOLECYSTOGASTROSTOMY

EXPERIMENTAL OBSERVATIONS

J. M. McCAUGHAN, M.D.

AND
H. K. PURCELL, M.D.

ST. LOUIS

The operation of cholecystogastrostomy has been utilized generally for the purpose of circumventing irreparable obstructions to the common ducts such as carcinomas and strictures. Its use has been extended by some as a substitute for gastroenterostomy in gastric ulcer and Babcock1 and Heyd15 have recommended anastomosis of the gallbladder directly into the ulcerated area. Murdy²¹ suggested that the operation be used in place of cholecystectomy for infection of the gallbladder without stones or for cholangeitis with or without stones. Dubose, 10 Deaver, 8 Frenkel, 11 Braithwaite, 2 Nazarov,22 Villard and Richer,24 all urged wider use of this operation in the surgical management of perforated gastric and duodenal ulcers, perforation of the gallbladder and obscure chronic or intermittent jaundice. Such enthusiasm, however, was dampened somewhat by observations, drawn both from clinical as well as animal work, that cholecystogastrostomy frequently resulted in infection of the gallbladder and abscesses throughout the liver. 12, 17, 20, 23, 26 Walters 25 felt that the operation was most useful when restricted to cases of obstructive jaundice due either to strictures of the common bile duct, pancreatitis or carcinoma of the head of the pancreas.

The cause of these ascending infections apparently was due to the fact that after direct anastomosis of the gallbladder to the gastrointestinal tract,

the biliary system was no longer protected by the valve mechanism of the sphincter of Oddi and consequently a reflux of contents from stomach to gallbladder occurred. Bernhard,4 for example, reported barium regurgitation in 50 per cent of cholecystogastrostomized patients. Lahey and Mac-Kennon¹⁸ advised the use of the upper jejunum for anastomosis and Whipple²⁸ who has recently advocated, in properly selected cases, resection of carcinomas of the head of the pancreas along with excision of the duodenum (pancreatoduodenectomy) reported better results using the Monprofit or Y type of direct cholecystojejunostomy. Brunschwig6 used a long loop of jejunum combined with an enteroenterostomy. Yet despite some of these precautions ascending biliary tract infection continued to develop. In the field of animal investigation Weinberg, Wallen and Biner²⁷ obtained liver abscesses in dogs with direct cholecystogastrostomy and Beaver³ in two series of similar experiments showed that infections of the liver and biliary tract always occurred. He also showed that the discharge of bile into the stomach had no effect on gastric acidity. Horsley16 using the ordinary suture technic and the direct type of anastomosis made a comparative study between cholecystogastromy and cholecystoduodenostomy. In his series cholecystoduodenostomy yielded the higher mortality but in both groups there were definite infections of the gallbladder, bile ducts and liver.

The stomach has been more widely used for anastomosis with the gallbladder than any other part of the gastrointestinal trace, probably because of its greater accessibility. Figure 1 shows the principle methods taken from the literature^{5, 9, 13, 19, 23, 28, 29} which have been proposed for rerouting the bile to the gastrointestinal tract via the gallbladder. Each procedure has its special advocates and each has enjoyed some period of popularity. The multiplicity of these operations betokens some dissatisfaction with the method as a whole. This dissatisfaction with the direct type of gallbladder to stomach anastomosis ultimately led to various attempts to produce a valve or valvular

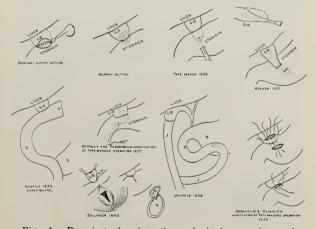


Fig. 1. Drawing showing the principal procedures described in the literature for cholecystgastrostomy with the name of the author and date of publication.

From the Department of Surgery, St. Louis University School of Medicine.

effect around the stoma of the anastomosis. The valvular principle for cholecystogastrostomy was first ingeniously utilized by Roeder²³ in 1931. His operation, however, involved a plastic procedure on the gallbladder itself in order to cut down its size as a preliminary step before making the actual anastomosis. This diminished gallbladder fundus was then introduced into the stomach through two short linear incisions which paralleled the curvatures.

The next important contribution to valvular cholecystogastrostomy was that of Zollinger²⁹ in 1940, who found it unnecessary to reduce the size of the gallbladder but simply freed it from its attachment to liver and then made a T shaped incision in the serosa and muscularis of the stomach. The fundus of the gallbladder was next anastomosed to the mucosa of the stomach and the serosal and muscular coats sutured over the gallbladder wall. Experimentally, Zollinger was able to prevent gross regurgitation and to lower the incidence of ascending infections. He also carried out this procedure in five patients. In his control group of animals with ordinary cholecystogastrostomy, he found regularly at autopsy food particles and hair and, by means of sodium iodide injections into the stomach, was able to show gross hydrohepatosis upon a reflux of the contrast media into the biliary system in the group without valvular protection. The microscopic sections of the liver in the valvular cholecystogastrostomized dogs showed only an occasional leukocyte about the bile ducts and the normal structural appearance of the gallbladder wall was retained without evidence of increased

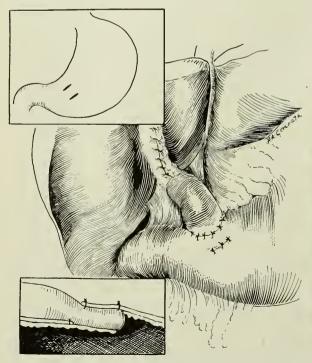


Fig. 2. A simple and satisfactory method for securing a valve-like mechanism at the site of the gallbladder and stomach anastomosis. Procedure devised by the authors.

fibrosis or signs of infection except for an occasional focal area of lymphocytic infiltration. In principle, Zollinger's operation seems excellent except that a simplification by the elimination of the T incision in the seromuscular coat of the stomach with the subsequent need for a tricornered closure of the wound would appear somewhat advantageous.

Glassman "in 1940 described still another method for producing a valve effect at the site of anastomosis. His procedure was essentially a direct anastomosis of the fundus of the gallbladder to the gastric mucosa which had been loosened from the incised muscularis by undercutting; the mucosa was then drawn up and the anastomosis made, after which, the gallbladder and the mucosa were replaced and the stomach wall enfolded onto the gallbladder with sutures somewhat as in the Senn or Kader types of gastrostomy.

The principle of oblique implantation of ducts between intestinal mucosa and muscularis really originated with the experimental and clinical investigations of Coffey⁷ and represented an attempt by the surgeon to imitate the protective valvular mechanism of nature. The following method seemed to us to embody the desirable features in the methods of both Roeder and Zollinger.

Experimental Procedure.—Under ether anesthesia, using dogs of from 10 to 15 Kg. in weight, a midline incision was made. (Fig. 2.) The gallbladder was freed from the liver and swung onto the anterior wall of the stomach near the lesser curvature. Two separate incisions were made through the serosa and muscularis of the stomach and the underlying mucosa between them freed by blunt dissection. The gallbladder was drawn into the first incision between the muscular and mucosal coats as far as the second incision as through a tunnel. A running suture then secured the gallbladder wall to the cut edges of the first or upper incision. The gallbladder fundus and the mucosa of the stomach were next opened through the lower or second incision and the two sutured together

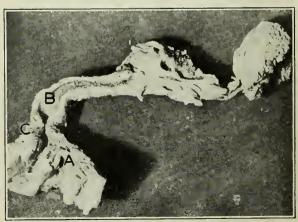


Fig. 3. Valvular cholecystogastrostomy. Photograph of the gallbladder and stomach (necropsy specimen). (A) Stomach. (B) Gallbladder. (C) Anastomosis. Note the transformation of the gallbladder into the narrow tube or duct like structure.



Fig. 4. Valvular cholecystogastrostomy roentgen ray of the stomach, liver and biliary system. The stomach is filled with barium (necropsy specimen). Note that there is very slight regurgitation of barium which does not extend into the finer bile ducts (see fig. 6).

with a running suture. Finally the cut edges of the seromuscular coats of the lower incision were united with sutures, after which the abdomen was carefully closed in layers.

PROTOCOLS

Dog No. 1 was a female weighing 15 Kg. A valvular cholecystogastrostomy was performed on February 1, 1940, according to the technic described. The course after operation was entirely uneventful and the animal was killed on the sixtieth day and a careful pathologic examination made. The anastomosis was intact and the gallbladder had contracted to form a narrow tubular structure. (Fig. 3.) The cut section of the liver showed no gross dilation of the intrahepatic ducts and no evidence of gross abscess formation. A roentgenogram was obtained by filling the stomach with barium and an attempt made to force the barium into the gallbladder by compressing the stomach manually. No barium was seen to enter the biliary system. (Fig. 4.) Sections for microscopic study were taken from the liver and from the site of the anastomosis. The liver sections showed some periductal round cell infiltration with an occasional leukocyte. (Fig. 5A.) The sections of the anastomosis showed the gallbladder mucosa merging into

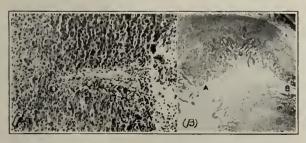


Fig. 5A. Photomicrograph of a section of liver from valvular cholecystogastrostomized dog. Note the slight degree only of periductal round cell infiltration. B. Photomicrograph of a section from the anastomosis in the valvular cholecystogastrostomized dog. Healing is complete, note muscle bundles around stoma. (A) Gastric mucosa. (B) Gallbladder mucosa.



Fig. 6. Roentgen ray of stomach, liver and biliary system in a dog with a direct cholecystogastrostomy. Note how gall-bladder and extrahepatic and intrahepatic ducts fill with the contrast media (necropsy specimen).

the mucosa of the stomach with complete healing. The oblique relation of the gallbladder to the muscular and mucosal coats was maintained and bundles of gastric muscle could be noted well around the gallbladder for some distance. (Fig. 5B.) It was interesting to note how the gallbladder had been transformed from a sac or pouchlike structure to a long narrow tube or ductlike structure. No food particles or other foreign bodies were evident in the biliary ducts.

Dog No. 2, a female weighing 12 Kg. was used as a control experiment and a direct gallbladder to stomach anastomosis was performed. This animal was killed on the thirty-fifth day and the stomach, gallbladder and liver were removed in toto. A roentgen ray examination was made by filling the stomach with barium. Figure 6 shows the ready entrance of the barium into the gallbladder and intrahepatic ducts. Figure 7 is a photograph of the



Fig. 7. Photograph of necropsy specimen from a direct cholecystogastrostomized dog. Note the absence of any, protective mechanism at the sight of the anastomosis.

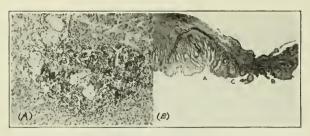


Fig. 8A. Photomicrograph of a resection of liver in the direct cholecystogastrosomy. Note well defined liver abscess. B. Photomicrograph of a sagittal section through the anastomosis in the direct cholecystogastrostomy. There is complete healing. Note silk suture.

stomach and gallbladder laid open and it shows the absence of any sort of protective mechanism at all around the stoma. Microscopic sections from the anastomosis and from the liver were obtained. When microscopic sections of the liver were examined and compared with those in the animals with valvular cholecystogastrostomy, a great difference in the degree of infection was evident. The liver sections in those animals with a direct type of anastomosis exhibit many miliary abscesses (fig. 8A), the ones with a valve at the anastomosis show at the most only a slight degree of round cell infiltration (fig. 5A). Fig. 8B, a section of the anastomosis, shows satisfactory healing. A silk suture in sagittal section may be seen.

RÉSUMÉ

Despite the belief of a few to the contrary it is the conclusion of the majority of surgeons who have studied the problem of ascending biliary tract infections after direct cholecystogastrostomy that not only do infections occur but they occur with sufficient frequency to constitute a real objection to the procedure. Furthermore, it is known as a result of numerous animal investigations, that while many animals showed no clinical evidence of hepatitis and cholangeitis after direct anastomosis, yet, infection was readily revealed at autopsy in a very large number of instances.

A satisfactory method of preventing the reflux of bile after gallbladder stomach anastomosis by a simple type of valvular cholecystogastrostomy is described and comparative animal experiments between our procedure and the direct method are cited to show that the establishment of this valvelike mechanism at the anastomosis greatly minimizes the risk of serious ascending biliary tract infection.

539 N. Grand Blvd.

BIBLIOGRAPHY

Babcock, W. W.: Cholecystogastrostomy and Cholecysto-

duodenostomy, Am. J. Obst. & Gynec. 1:854, 1920-1921.
2. Braithwaite, L. R.: Surgical Treatment of Chronic Duodenal and Gastric Ulcer: Cholecystogastrostomy as the Operation of Choice for Inaccessible Gastric Ulcer, Lancet 1:900, 1926.

1926.
3. Beaver, G. M.: Cholecystogastrostomy an Experimental Study, Arch. Surg. 18:899-912 (March) 1929.
4. Bernhard, F.: Die Frueh und Spaetergebnisse der Cholecystogastrostomie, der Cholecystoduodeno und Choledochoduodenostomie bei 128 Faellen, Deutsche Ztschr. f. Chir. 242:736-756, 1934.

5. Bettman, R. B., and Tannenbaum, W. J.: A Modification

of the Tate Mason Method of Cholecyst-gastrostomy or Cholecysto-duodenostomy, Ann. Surg. 103:465-467, 1937.
6. Brunschwig, A.: Resection of Head of Pancreas and Duodenum for Carcinoma; Pancreatoduodenectomy, Surg. Gynec. & Obst. 165:681-684, 1937.
7. Coffey, R. C.: Physiologic Implantation of the Severed Ureter or Common Bile Duct Into the Intestine, J. A. M. A. 56:397-403, 1911.

56:397-403, 1911.
8. Deaver, J. B.: Cholecystectomy: External and Internal Cholecystostomy, Ann. Surg. 81:761, 1925.
9. De bakey, M., and Ochsner, A.: A Simple Technic for Cholecystogastrostomy, Surgery 6:126-128, 1939.
10. DuBose, F. G.: Cholecystogastrostomy and Cholecystoduodenostomy, Surg. Gynec. & Obst. 39:295, 1924; Cholecystogastrostomy, South. M. J. 20:674, 1927.
11. Frenkel. A.: Der Einfluss der Cholecystogastrostomie auf den Magenchenismus beim Magenund Duodenal-ulcus, Zentralbl. f. Chir. 52:1459, 1925; abstr. J. A. M. A. 85:711, 1925.

Zentralbl. f. Chir. 52:1459, 1925; abstr. J. A. M. A. 85:711, 1925.

12. Graham, E. A.; Cole, W. H.; Copher, G. H., and Moore, Sherwood: Diseases of the Gallbladder and Bile Ducts, Philadelphia, Lea & Febiger, 1928, p. 443.

13. Gentile, A.: Cholecystogastrostomy and Hepatitis, Arch. Surg. 30:449-475, 1935.

14. Glassman, J. A.: A New Valvular Cholecystogastrostomy, Surg. Gynec. & Obst. 71:478-481, 1940.

15. Heyd, C. G.: Cholecystogastrostomy and the Courvoisier Gallbladder, J. A. M. A. 77:339, 1921.

16. Horsley, J. S.: Experimental Study of Cholecystgastrostomy and Duodenostomy, South. M. J. 20:667-674, 1927.

17. Kehr, H.: Chirurgie des Gallenwege, Neue deutsche Chir. 8:676:689, 1913.

18. LaHey F. H., and MacKinnon, D. C.: Carcinoma of the

18. LaHey F. H., and MacKinnon, D. C.: Carcinoma of the Pancreas, Surg. Clin. N. America 18:695-704, 1938.

Pancreas, Surg. Clin. N. America 18:095-704, 1938.
19. Mason, J. T.: Technic of Cholecystgastrostomy, J. A. M. A. 94:29, 1930.
20. Mason, J. T., and Baker, J. M.: Cholecystogastrostomy: Autopsy Two Years Later, Surg. Clin. N. America 11:1105,

1931. 21. Murdy,

21. Murdy, R. L.: Indications for Cholecystenterostomy, Journal-Lancet 43:89, 1923.
22. Nazarov, N. M.: Cholecystogastrostomy for Gastric Ulcer, Surg. Gynec. & Obst. 45:474, 1927.
23. Roeder, C. A.: A Modified Cholecystgastrostomy, Ann. Surg. 94:311-313, 1931.
24. Villard and Richer: La cholecysto-gastrostomie, Rev. de Chir. 62:455, 1925.

Chir. 63:455, 1925. 25. Walters, W. Cholecystgastrostomy, Surg. Gynec. & Obst.

23. Walters, H. Cholangeitis Following Cholecyst-42:825, 1926.
26. Wangensteen, O. H.: Cholangeitis Following Cholecyst-enterostomy, Ann. Surg. 87:54-65, 1928.
27. Weinberg, J. A.; Wallin, S. P., and Binger, M. W.: Gallbladder Stomach Anastomosis, Surg. Gynec. & Obst. 45: 795, 1927. 28. Whipple,

O.: Surgical Treatment of Carcinoma of the Ampullary Region and Head of the Pancreas, Am. J. Surg. 40:260-262, 1938.

29. Zollinger, R. A.: Method of Valvular trostomy, Surg. Gynec. & Obst. 70:71-78, 1940. Valvular Cholecystogas-

TREATMENT FOR HEAD LICE

The formula of a lotion which proved to be quite satisfactory for the treatment of head lice and their eggs on children in an American hospital and on civilian populations in Mexico and which is recommended for general use in the control of head lice is reported in The Journal of the American Medical Association for November 27 by William A. Davis, M.D., New York.

In the introduction to his report, Dr. Davis explains, "As part of a general program to devise methods for the control of typhus fever a systematic study was undertaken with a view to determining the louse-killing properties of various chemical agents. . . ." He points out that there are many objections to the older methods for the control of head lice and says, "The ideal method for treating pediculosis capitis should be by a lotion, since only a liquid can easily penetrate the entire hair and leave a residual for prolonged action. The fluid should rapidly kill lice and nits, should not have unpleasant properties such as greasiness, staining or odor and should be both cheap and lasting. Systemic laboratory studies revealed several materials with these properties. Phenyl cellosolve and benzyl cellosolve were the most efficient and were readily available. . . . For simplicity only phenyl cellosolve was used on human beings."

The formula used was phenyl cellosolve 40 per cent, ethanol 30 per cent, water 25 per cent and methyl salicylate (as a perfume) 5 per cent.

SYPHILIS

PUBLIC HEALTH ASPECTS

JOSEPH F. BREDECK, M.D.

ST. LOUIS

The incidence of syphilis has been mounting for a period of years, but it seems that it takes a war to give a true picture of what has been going on in the peace interval. In 1941 (the figures for 1942 are not available) 45 per cent of the morbidity reports were on venereal disease. Reporting on contagious diseases as a whole is never complete—never 100 per cent—and for that reason people who report venereal disease may be reporting even less accurately on venereal disease than on some of the other contagious diseases, with the exception of such diseases as measles. That shows the relative importance of syphilis and gonorrhea in the general public health program.

Another striking thing is that venereal diseases, including syphilis, are the only diseases that do not show a drop in morbidity. In other words, other communicable diseases show a drop, with the exception of a few for which there are no known definite preventive measures—measles, whooping cough and scarlet fever. But such diseases as typhoid fever, diphtheria and smallpox have diminished to a point at which they are practically nonexistent. Last year, there was not a single death in St. Louis from typhoid in twenty-six cases, no smallpox, and twenty-two cases of diphtheria.

What is the mortality as reported by the physician on death certificates? There are only two diseases that cause a higher mortality than syphilis. Pneumonia heads the list, tuberculosis is second and syphilis is third. There are fairly accurate methods of examining the blood, there is the dark field, the incubation period is known and new drugs can render the disease relatively noninfectious in a short time; but in spite of all these discoveries by the medical profession, these diseases are still increasing. Now how successful (with what most physicians have known for twenty-five or thirty years) has medicine been in handling these diseases?

The best figures I can give are for 1942 for those men coming before the draft board for induction into Selective Service in St. Louis. About 4 per cent of white and about 29 per cent of Negroes showed positive syphilis. The war cannot be blamed for this incidence for these infections occurred before Pearl Harbor. St. Louis is only a pattern of other larger communities and even some smaller ones. These are the figures the Army has shown when the men came for induction. One advantage of the war is that some of the things not known about civilian life, as the incidence of syphilis, are becoming known. The same experience exists as a result of routine roentgen ray of the chest of the men who come before Selective Service. Tuberculosis also is higher than was thought. In comparison with other infectious diseases one can predict definitely that syphilis will be the major infectious disease of the future. In fact, these things have been seen coming for the last twenty-five years. There is a great deal more syphilis today in spite of the fact that there are drugs to combat it. Twenty years ago tuberculosis headed the causes of death, and today it is down the scale.

If the disease cannot be controlled over a period of years in which there have been specific drugs, and if the fatalities are as high today as thirty-five years ago, then one of the most important things for the medical profession is to emphasize the sources of infection. In other words, tuberculosis has become a question of early diagnosis, isolation of patients and examination of contacts. When one looks over the mortality reports on venereal disease one finds many essentials absent from the reports. There is nothing about contacts. And the reports on the source of infection should be investigated earnestly. So long as the contacts in these cases of syphilis are not found, control is going to fail because the treatment of known cases alone has never controlled any infectious disease, and it cannot be expected that the treatment of syphilis alone will control the disease.

When the venereal disease program in St. Louis was started about five years ago, the source of the infection was studied and it was found that 54 per cent came from houses of prostitution. Since the war additional information has been obtained. The word "prostitution" is rather a broad term. There are various types of prostitutes, and since the war a number of individuals are being found who come under this class who did not before the war. According to the soldiers, 83 per cent of the women with whom they make contacts receive no money at all. So the question of prostitution, call it by whatever name one chooses, plays an important role in the increase in this disease. That being the case, one can picture the innocent syphilis cases that follow. The only thing that is important from the public health angle is to study the contacts in venereal disease the same as is done in tuberculosis and other infectious diseases. That is the greatest fault of the mortality reports that I can see up to the present day.

There has been a great deal of discussion about prostitution, and with so many army men turned loose, even though the prostitutes are examined and treated, I believe whole areas should be controlled. About four years ago there were fortyseven houses in St. Louis, and these were protected and the inmates were supposed to be clean prostitutes. Twelve hundred of these prostitutes were examined and of that number 91 per cent of the Negro and 89 per cent of the whites had both gonorrhea and syphilis at the time of the examination. I think that gives a pretty clear idea that they were not clean. Those people have little chance to avoid infection and it is almost beyond man's ingenuity to see how they can be controlled. I have had some experience in the Regular Army Medical Corps,

and in the last war I was in charge of a large venereal disease camp. Prophylaxis had been taught. I have seen movies that taught how to take prophylaxis, but it was not applied that way in practice. In other words, prophylaxis as it is generally given fails to control venereal disease. There is no known method of protecting individuals when they are exposing themselves indiscriminately to infection. In other words, promiscuous intercourse is the great source of infection, and in this syphilis differs from the other communicable diseases. The medical profession can do no more than point out these broad angles of control of venereal disease. Its role is to report cases promptly, and the question from the public health angle is to get the contacts and have them examined as early as possible and in that way prevent infection at the earliest possible time. The profession has this obligation, and until it appreciates it, the control of this disease will not get very far.

Other agencies play a role in this disease, agencies that have to do with community life. Any contact with these problems will show that public health services are limited in what they can do. There are other agencies in the community that have to do with the control of certain conditions. Syphilis has been called a social disease, and there are many social problems in the community. One will find the incidence of syphilis high in a community in which other infectious diseases are high such as tuberculosis and pneumonia. Of course the courts and other law enforcement organizations have also as part of their business the enforcement of the law. The medical profession should keep itself informed on the measures that have to be taken by the police department and other law enforcement agencies in regard to control, and insist that they go after the places where it is known the actual cases of syphilis are contracted and which serve to spread the disease. It is through cooperation that control of this disease will be gained. The Army, if it has done nothing else, has given certain information that could not be obtained before. Police departments and law-enforcing agencies should be in a better position to help with this information.

I do not want to exaggerate the picture of venereal disease; I do not think I can. There will be more to do with it in the future than in the past, and it is only by an enlightened attitude as to what the disease is, the modes of infection and the morbidity and mortality records that one can hope to get anywhere. I want to impress upon the average practicing physician that there is no better service he can render in conjunction with treating the patient with venereal disease than to pay more attention to the contacts in these infectious diseases. That is the role the medical profession can play in the solution of the public health problem—to see that these contacts are diagnosed and placed under treatment. Without more emphasis on contact examination, one cannot hope to control the venereal diseases.

508 N. Grand Avenue.

SYPHILIS

FIVE-DAY AND OTHER TREATMENTS

ARTHUR W. NEILSON, M.D. ST. LOUIS

When one speaks of the treatment of syphilis, he is speaking of a big subject and any attempt I might make to discuss this large subject in a short time would be futile; I can only generalize.

One may separate the treatment of syphilis arbitrarily into two general classifications. The first is the older, more conservative treatment of syphilis. These treatments have been well outlined in textbooks by men like Stokes, Moore and many others who have written at length on the subject. Then, if one again redivides the older treatment into two classifications—the treatment of early and the treatment of late syphilis, and makes early syphilis that which is of less than four years duration—one then can say the disease is being treated and not the patient. These individuals are usually young patients. They are healthy and in good physical condition. I think it was Keidel who first brought to the attention of practicing therapists of that time that continued treatment is important. It is important in early syphilis—continuous treatment with arsenic and with heavy metals. Rest periods are not allowed in early syphilis.

Old arsphenamine has been supplanted largely by neosalvarsan, mapharsen and a few other newer drugs. Mercury used to be the thing and, of course, now bismuth is used in combination with the arsenicals. This is a general idea of the treatment which still holds good. It is far superior to any intermittent treatment and leaves no room for comparison.

Moore states that a study of Padget's review of Johns Hopkins material showed 65.7 per cent "cured" regardless of the type or amount of treatment given. He feels that with adequate treatment the percentage is greater.

There are other considerations here that I cannot discuss—early positive spinal fluid findings, the treatment of youth and of old age, drug reactions. These are certainly of great importance in the management and treatment of early syphilis.

Then here is the question of treating the patient who is too far along in his disease. There is a wide diversity in the location and extent of the lesions and in the individual resistance to infection. It is understood that this stage of the disease cannot be altered by treatment. It is known that chances for obtaining a cure are almost nil. If that is true, why does one bother to treat these late cases? These patients are treated to give them symptomatic relief, to obtain, if possible, anatomic normality as long as possible or at least retain functional normality, to stop the progress of the lesions, even if their lesion cannot be seen and to keep the patient in the best possible physical condition for as long as possible or until death.

In late syphilis the clinical aspect merely is con-

sidered. Moore states that more than 40 per cent of these individuals can give no history of their infection. The most important reason for the treatment of late syphilis is the possibility of controlling the transmission of the disease to the next generation. This transmission usually is accomplished by women with latent syphilis. There is about a 16 per cent chance of a woman who is pregnant and infected with syphilis having a normal healthy child. Treatment is by chemotherapy, neoarsphenamine and mapharsen probably being the drugs of choice. The high dosage of drugs that is needed in early syphilis is not needed at this time and it does not make so much difference about rest periods. As a matter of fact, in late syphilis, rest periods often are given while in early syphilis, when possible, no rest periods are given. Again, in this class of latent syphilitics, one must consider sex, age, pregnancy, the duration of the disease, relapse, reinfection and complications and the treatment has to be chosen in view of them.

The treatment of neurosyphilis and other types cannot be touched on here.

I have said a few words about the treatment of syphilis by the old, conservative method, and now I wish to bring attention to the second classification: the treatment by intensive methods. This usually is known as massive-arseno therapy, or the fiveday drip method. However, five days is not necessarily the optimum period of time. This general method could be divided again into schemes in which a hypodermic syringe is used. For some individuals, perhaps, this is best. There have been a great many plans set forth. It is hard to pick up even a lay magazine these days without seeing that somebody has a "rapid method" of curing syphilis, the time ranging from one day to six months. I have had no experience with any of these with the exception of the original five-day method, and by now this is not so very new.

Early in the 1930's when Chargin, Leifer, Hyman and others brought out their first work on this subject, they had been working with animals in an effort to determine something about the cause of "speed shock" that is seen when fluids are injected too rapidly into the blood stream. They discovered it was possible to inject far larger amounts of drugs by the slow drip therapy and have them tolerated, than would be possible if the drug were given more rapidly. It was natural, therefore, that an attempt would be made to devise a more rapid method to treat syphilis with higher concentrations of an arsenical preparation. They started with neoarsphenamine but had so many reactions that they discontinued. Now most investigators use mapharsen by the intravenous method—2,400 mg. dissolved in from 2,000 to 3,000 cc. of 5 to 10 per cent glucose. This is run intravenously in about eight hours' time. This is done for five days and at the end of that period the patient received 1.2 grams of mapharsen. I found that the relapse rate was about 15 per cent, and that was too high, so variations of the original method were tried. Group I receives 1.2 grams mapharsen only. Another group receives, in addition, 12 cc. of bismuth in six doses at the follow-up clinic. Bismuth also is given along with the arsenic at the hospital. Probably this is a better method since it apparently reduces the relapse rate.

I want to point out that rapid treatment is for use in early syphilis. I have tried it in a few cases of latent syphilis. Two of these cases relapsed. More work needs to be done in the field before one can make more positive assertions about the added value of bismuth.

The advantages of this method are: first, rapid sterilization of the infected patient. From a public health standpoint this is advantageous. It saves time for the individual, too. When one is talking to a young man who is working and tells him he has to come back for a year, or a year and a half to receive shots, he does not object to the shots but to the time lost—how he can keep his job and lose that time; what to tell his boss. But, if one tells him he can be put in a hospital for a number of days and get the job over, that sounds pretty good to him.

Secondly, and this is an important public health aspect, the patient receives *all* his treatments. There is something that is not much thought of, but it is known that 50 per cent or less of clinic patients drop their treatments before they achieve cure. Besides, probably only 20 per cent who start out in a large clinic ever take all of their treatments, and that is a tremendous loss in the efficiency of a clinic.

A third thing is important: the shame factor. So many individuals are ashamed of their disease, and they have a right to be. If an individual reports to a clinic or a doctor once a week, and keeps it up, the neighbors begin to wonder why he has to go to that certain doctor once a week and, sometimes, in desperation he discontinues his treatment. There is the shame factor there. But, if one tells him he can be fully treated in a shorter time and avoid suspicion, he is grateful.

Dr. Moore states that from 60 to 70 per cent of early syphilitics achieve cure by the old method of treatment. I should like to compare those figures with those of the rapid treatment method, after watching a group for about three years. In this group there have been about 87 per cent of "cures." Of course it cannot be known whether or not these individuals are permanently cured until twenty years or more have elapsed, but at present I can say that, clinically and serologically, about 87 per cent are well. There have been relapses and reinfections. Some of the relapses can hardly be differentiated from reinfections. I should like to call many of the relapses reinfections but one cannot; one must follow certain criteria for reinfection. Perhaps these criteria are too stringent. I consider this method an addition to the armamentarium of the syphilologist.

DISCUSSION

E. C. McGAVRAN, M.D., Webster Groves: What are the mortality figures?

DR. NEILSON: The mortality with the older methods has been considered to be about one in 1,250 patients treated with trivalent arsenicals. The mortality with the five-day treatment—I do not know what it is by the multiple injection method—but in 4,000 cases reviewed by Dr. Elliott of the U. S. Public Health Service, it is about .3 per cent. The rate on the series I mentioned and based on a comparatively small group of cases is greater than that.

Humboldt Building.

CASE REPORTS OF THE BARNES HOSPITAL

CLINICAL AND POSTMORTEM RECORDS USED IN WEEKLY
CLINICOPATHOLOGIC CONFERENCES AT BARNES
HOSPITAL, ST. LOUIS

W. BARRY WOOD, JR., M.D., AND ROBERT A. MOORE, M.D., Editors

CASE 35

PRESENTATION OF CASE

The patient was a 53 year old, white, married housewife who was admitted to the Barnes Hospital four times within a period of five months. She was first admitted on April 17, 1940, and discharged on April 24, 1940.

Chief Complaint.—Dyspnea on exertion for one year, palpitation and edema of ankles for six months and painful swelling of left knee joint for three months.

Family History.—Patient's mother died at 68 of heart disease.

Past History.—Her general health had always been good. She had measles, mumps and whooping cough in childhood. The patient had complained of poor eyesight for more than three years. Four vears before admission to the hospital, she began to be bothered by attacks of cramping epigastric pain following meals. The pain radiated to the right costal margin and was accompanied by nausea but no vomiting. The patient stated that by eliminating fried foods and rich pastries from her diet, she was able to rid herself of the attacks. The pain was never severe enough to force her to call a physician. Fourteen years before admission, the patient had an attack of acute inflammatory rheumatism manifested by tender, swollen, red joints in both lower extremities. She remained in bed with this illness for seven weeks. She had no recurrence of these attacks until the present illness. The patient's husband contracted syphilis in 1910 and at that time she also was found to have syphilis and was placed under treatment. She stated that she took tablets for seven or eight years but received no parenteral treatment.

Personal and Social History.—Not mentioned.

Present Illness.—One year before admission the patient began to complain of dyspnea on exertion. Because of this complaint, she visited a physician

who began a course of parenteral antiluetic therapy. Six months before admission, she noticed that both of her ankles were becoming swollen, dyspnea was becoming more marked and was often accompanied by pounding of her heart. On at least three occasions she was awakened at night because of sudden attacks of severe orthopnea. Three months before admission she noticed that her left knee was swollen and the pain became so intense that she could not bear her weight on the left leg. During the three months previous to admission, she had noticed blood-tinged sputum on several occasions in the morning. She had gained 30 pounds in weight.

Physical Examination.—Temperature was 37.3 C., pulse, 88, respiration 22 and blood pressure 170/80. The patient was an obese white woman lying flat in bed in no apparent distress. Examination of the eyes revealed no abnormalities other than slight tortuosity of retinal vessels with arteriovenous nicking. The throat was slightly injected. The neck veins were distended. The lungs were said to be clear except for a few moist rales at both bases. The heart was enlarged to percussion. No thrill was mentioned but several observers described a crescendo presystolic murmur at the apex of the heart together with a soft systolic murmur. The first heart sound at the apex was accentuated, the second pulmonic sound was loud but the pitch and character of neither murmur were described. The cardiac rhythm was regular. The abdomen was obese. The liver edge was felt three finger breadths below the costal margin but the spleen could not be palpated. Pelvic examination gave normal findings. There was pitting edema of both legs and ankles. The left knee joint was hot, swollen and tender. The neurologic examination was noncontributory.

Laboratory Findings.-Blood count: red cells 4,450,000, hemoglobin 86 per cent, white cells 6,500; differential count: eosinophils 3 per cent, "stab" forms 3 per cent, segmented neutrophils 62 per cent, lymphocytes 25 per cent, monocytes 8 per cent. Urinalysis: no sugar or albumin, other tests not done. Serologic tests: blood Kahn positive, Wassermann reaction with both cholesterolized and alcoholic antigen positive. Blood chemistry: blood sugar 91 mg. per cent, nonprotein nitrogen 16 mg. per cent. Stool examination: no ova or parasites. Guaiac test negative. Venous pressure 190 mm. of water. Electrocardiogram: normal sinus rhythm, P-R interval .2 seconds, transverse position of heart. Roentgenogram of chest: slight cardiac enlargement to the left; peribronchial thickening of indeterminate nature. Lumbar puncture: spinal fluid pressure 190 mm. of water, cell count four, Pandy test trace, Wassermann reaction negative, colloidal gold curve 0001110000, total proteins 20 mg. per cent, chlorides 775 mg. per cent. Concentration diuresis test: maximum concentration 1.022.

Course in Hospital.—The patient improved rapidly on bed rest, light diet and limited fluids. She was never digitalized but was given 1/10 of a gram of

digitalis per day for seven days at the end of which time she was sent home.

Interval History.—After being discharged from the hospital the patient was sent to the Syphilis Outpatient Clinic where she received weekly injections of bismuth intramuscularly. She took no digitalis for one week but at the end of that time she began to take two tablets four times a day. The digitalis was discontinued three weeks before admission because of nausea and vomiting. Shortly after discharge from the hospital, the patient noticed that her abdomen was becoming swollen and her ankles again were becoming edematous. Swelling of the abdomen increased and she returned to the hospital on June 14, 1940. During the interval the patient had had no cough, dyspnea or orthopnea.

Second Hospital Admission.—June 14, 1940, to July 23, 1940.

Physical Examination.—Temperature was 38 C., pulse 82, respiration 20, blood pressure 120/60.

The physical findings were the same as on the previous admission except for the signs in the abdomen and the absence of the presystolic murmur at the apex of the heart. In place of the presystolic murmur previously noted there was heard a diastolic third heart sound but no definite diastolic murmur. This finding was confirmed by several observers. The abdomen was distended and there was some edema of the abdominal wall and a cystic mass was described in the lower abdomen. No definite fluid wave was made out. There was edema of the legs and ankles.

Laboratory Findings.—Blood count: red cells 4.2 million, hemoglobin not recorded, white blood cells 6,350; differential count: eosinophils 2 per cent, "stab" forms 2 per cent, segmented neutrophils 68 per cent, lymphocytes 28 per cent. Serologic tests: blood Kahn test positive, Wassermann test positive. Blood chemistry: blood sugar 89 mg. per cent, non-protein nitrogen 7 mg. per cent. Circulation time 14 seconds with decholin. Venous pressure 120 mm. of water. Electrocardiogram: P-R interval .22, transverse position of heart.

Course in Hospital.—Because of the suspicion that the swelling of the abdomen was due to an ovarian cyst, an exploratory laparotomy was performed on June 20. Following is an excerpt from the operative note. "Approximately 6,000 cc. of ascitic fluid were aspirated from the peritoneal cavity. The pelvis was exposed, the adnexae were normal, the uterus was small with one small intramural myoma present on the anterior surface of the uterus. The entire ascending, transverse, descending colon and sigmoidal mesentery was firm and nodular, suggestive of a liposarcomatous degeneration. The intestines appeared to be healthy. In the region of the gallbladder and pancreas, there was a nodular firm mass apparently arising from either the pancreas or the bile ducts. It was not adherent to the duodenum or the stomach and there was one firm nodule in the anterior surface of the left lobe of the liver. The spleen was normal and the kidneys were normal. Biopsies were taken from the

sigmoidal mesentery and abdominal wall." Following operation, the wound healed very slowly and the ascites and ankle edema gradually reaccumulated. The patient was finally discharged on July 21 but on the day of discharge 6,200 cc. of clear, yellowish fluid were removed from the abdomen by paracentesis. The pathologic report on the biopsy specimens was as follows: "Three slides are available for study. The anatomic and pathologic picture in all is essentially the same. The tissue is composed of definite and indefinite lobules of fat, covered in part by a serous membrane. The trabeculae of connective tissue between the lobules are increased in thickness by proliferation of fibroblasts and slight infiltration with lymphocytes and an occasional polymorphonuclear leukocyte. In the subserous tissues the proliferation of fibroblasts is conspicuous, and there is some budding of capillaries. In a few places the mesothelium is intact and it is composed of two or three layers of polygonal cells. The fat cells throughout are well preserved. In a few small arterioles, especially just beneath the serosa, there is an acute inflammation of the wall and infiltration with polymorphonuclear leukocytes.

"Comment.—On the assumption that this tissue was taken from the abdominal cavity of a patient with ascites, two conclusions can be drawn: (1) that there has been an ascites for a long period of time, with fibrosis of the subperitoneal tissues, and (2) that this process is active, as shown by the presence of polymorphonuclear leukocytes and an acute arteritis. The absence of fibrin on the surface would suggest that the acute inflammation is of a mild character and has not yet progressed to what might be called a peritonitis."

Interval History.—The patient had no further complaints following discharge except for reaccumulation of the ascitic fluid. The abdomen gradually became more distended so that on August 3 the patient returned to the hospital for a paracentesis.

Third Hospital Admission.—August 3, 1940, nine hour stay in hospital.

Physical Examination.—Temperature was 37 C., pulse 86, respiration 20, blood pressure 93/58.

The physical findings were essentially the same as before, the patient again showing evidence of marked ascites and edema.

Course in Hospital.—Paracentesis was performed and 5,600 cc. of slightly cloudy yellow fluid were withdrawn. After paracentesis, a firm, slightly tender mass was felt in the right upper quadrant extending 3 or 4 cm. below the right costal margin. The lower end of the abdominal wound was still draining. The patient was discharged after nine hours.

Interval History.—The patient was followed in the Outpatient Department where she was given intravenous diuretics in an attempt to reduce the rapidity of accumulation of ascitic fluid. In spite of this, she had to be tapped on several occasions in the Outpatient Department. Three days before admission, a paracentesis was done and 3,000 cc. of cloudy fluid were obtained. Sediment of the fluid revealed only white cells and no bacteria. Palpation of the abdomen after the paracentesis revealed the same large, irregular mass previously described in the right upper quadrant. There was no abdominal tenderness. During the next three days, however, the patient developed intermittent epigastric pain, chilliness, nausea and vomiting and on the day before readmission to the hospital passed a stool containing bright red blood.

Fourth Hospital Admission.—September 2, 1940, to September 8, 1940.

Physical Examination.—Temperature 37 C., pulse 104, respiration 26, blood pressure not recorded. The patient appeared to be ill but was in no acute distress. She was lying flat in bed without dyspnea. The abdomen was greatly distended. The tongue was dry and coated. The lungs were said to be clear. Examination of the heart revealed the same physical findings as described on the first hospital admission including the presystolic rumble heard at the apex. The abdomen was diffusely tender and there was edema of the abdominal wall. The abdominal incision had healed.

Laboratory Findings.—Blood count: red blood cells 2.42 million, white blood count 38,000; differential count: juvenile forms 3 per cent, "stab" forms 57 per cent, segmented neutrophils 35 per cent, lymphocytes 4 per cent, monocytes 1 per cent. Blood chemistry: nonprotein nitrogen 77 mg. per

Course in Hospital.—On the day following admission, a diagnostic paracentesis was done and approximately 7 cc. of slightly bloody fluid were removed. A stained smear of the sediment showed many polymorphonuclear leukocytes but no organisms. Culture of the ascitic fluid revealed E. coli. The patient was placed on sulfonamide therapy and otherwise was treated only by supportive measures. During the entire hospital stay there was no fever but there was a persistent tachycardia. Urinary output remained low in spite of the administration of intravenous glucose. Peripheral edema was noted soon after admission and the total blood proteins were found to be 5.2 grams per cent, with but 2 grams of albumin. On the fifth day in the hospital, the patient became comatose and on the seventh hospital day she died. Twenty-four hours before her death, the white blood count was 34,000 the blood nonprotein nitrogen was 96 mg. per cent and the sulfanilamide blood level was 13.4 mg. per cent.

CLINICAL DISCUSSION

Dr. W. Barry Wood: This is an extremely complicated case and I think that for purposes of discussion we might divide the illness into three phases: (1) the signs and symptoms of cardiac failure which brought the patient to the hospital for the first time; (2) the development of ascites which required operation at time of her second admission; and (3) the obvious terminal peritonitis. Does anyone have any suggestions for a diagnosis, considering only the first hospital admission? Dr. Massie?

DR. EDWARD MASSIE: I think that in view of the history of rheumatic heart disease and the auscultatory findings one can say that a diagnosis of rheumatic heart disease

with mitral stenosis is tenable.

DR. WOOD: What is in favor of that diagnosis?

Dr. Massie: The history of an attack of acute inflammatory rheumatism, lasting for seven weeks, at the age of 39. That history would be consistent with a diagnosis of mitral stenosis. It is true that in the majority of patients one would not expect the complication of chronic valvular disease at the age of 39. On physical examination a crescendo presystolic murmur at the apex was

DR. WOOD: What else in the physical findings goes with this diagnosis? How about the heart sounds?

Dr. Massie: They are in keeping with pulmonary hypertension. Mitral stenosis produces some back pressure in the pulmonary vascular tree resulting in the common finding of accentuation of the pulmonic second sound. The accentuation of the first sound is strongly in keeping with the diagnosis. In the electrocardiogram the prolonged P-R interval is slightly above normal limits.

Dr. Wood: What about the history of hemoptysis?

Dr. Massie: Hemoptysis is not ordinarily observed in rheumatic heart disease unless there is concomitant failure and auricular fibrillation. It is possible to get hemoptysis in this patient simply on the basis of the valvular lesion and failure, however.

Dr. Wood: Is it not true that the incidence of hemoptysis is higher with mitral stenosis than with other

types of cardiac disease?

DR. MASSIE: Yes, that is true. One thing that is not in keeping is that the patient had no persistent dyspnea or orthopnea. This makes us think of a possible tricuspid valve lesion, a lesion of the liver or a possible cardiac tamponade. There is no dyspnea or orthopnea in that condition—that is, constrictive pericarditis.

DR. WOOD: Does the fact that the murmur disappeared

disturb you?

Dr. Massie: No. It is characteristic of mitral stenosis that one must listen several times to hear the murmur. Also the murmur is not spread over the entire apical area. Even when it disappeared in this patient, there was a third heart sound.

DR. Wood: Then you favor a diagnosis of rheumatic

heart disease?

Dr. Massie: Yes, plus something else. Dr. Wood: Something else in the heart?

DR. MASSIE: Yes-a tricuspid valve lesion possibly. It is a likely diagnosis if we rule out other diseases below the diaphragm.

Dr. Wood: Are there other suggestions?

STUDENT: Constrictive pericarditis would not have a widened pulse pressure, would it?

DR. MASSIE: No. That was only a suggestion. It is ruled out on the basis of the other findings.

Dr. Wood: How about acute rheumatic fever in this patient? She had a swollen, tender joint and a pro-longed P-R interval. Do these findings indicate that the rheumatic fever was active or inactive?

Dr. Massie: It could be so-called "smoldering" rheu-

matic fever-subacute rheumatic fever.

DR. Wood: Does not that mean frequent recurrent at-

Dr. Massie: Yes. Fourteen years elapsed in this patient between the initial attack and subsequent attacks. Dr. Wood: Dr. Hageman, what is your opinion about

this knee joint?

Dr. Paul Hageman: In reading the history I felt that the patient had an episode of acute rheumatic fever concurrently with the episode of cardiac failure.

DR. WOOD: The white blood count was normal. Does

that disturb you, Dr. Karl?

Dr. Michael Karl: No. It may be normal in rheumat-

ic fever.

Dr. Wood: This patient had another disease-syphilis. Dr. Harford, what feature of this illness do you think was syphilitic on the first admission? Or is this latent syphilis?

Dr. Carl Harford: It does not conform to the definition of latent syphilis, but as far as I can tell it is syphilis

without clinical manifestations.

Dr. Wood: What is latent syphilis?

DR. HARFORD: It is syphilis diagnosed purely on the basis of a positive blood test without positive findings either in the history or the physical examination. This patient's husband had syphilis, which is a positive fact in her history.

Dr. Wood: Do you agree with that, Dr. Moore?

DR. CARL MOORE: Yes, I do.

Dr. Wood: Dr. Taussig, do you agree that in latent syphilis there is no positive history?

DR. BARRETT TAUSSIG: That has not been my impres-

Dr. Wood: I think the history may be positive along with the serologic test, but there can be no physical findings or symptoms.

DR. HAGEMAN: Earle Moore makes a point that a diagnosis of latent syphilis must include a negative

spinal fluid.

DR. WOOD: But the history may be positive?

Dr. Hageman: Yes.

DR. WOOD: With that definition, Dr. Harford, would you call this latent syphilis?

Dr. Harford: Yes.

DR. Wood: Are there any other comments on the first admission? The next phase of the illness is more difficult to discuss. Does anyone have a suggestion as to diagnosis on the basis of the first two hospital admissions?

Dr. Taussig: I would like first to make two more comments in regard to the first hospital admission: There is a history of cramping epigastric pain which was relieved by elimination of fat and rich foods from the diet. This suggests some disease of the biliary system. (2) In a patient with rheumatic heart disease and cardiac failure I would think that it would be unusual to find no evidence of myocardial damage on the electro-

DR. MASSIE: The electrocardiogram is a test which I should say ranks about fourth in importance in the cardiovascular examination. If the electrocardiogram does not fit in with the clinical picture I do not

think it merits a great deal of attention.

Dr. Wood: Dr. Taussig, you suggested biliary disease.

Would you be a little more specific?

Dr. Taussig: Possibly a stone in the gallbladder, which conceivably might have been associated with a carcinoma.

DR. Wood: Let us go on to the second hospital admission. What suggestions are there?

STUDENT: How is the gain in weight of 30 pounds be-

fore her first admission to be explained?

Dr. Wood: I would explain it on the basis of cardiac failure and the development of edema. In considering the second admission we must explain the ascites and the mass in the right upper quadrant.

Dr. Taussig: It seems to me perfectly possible that the swelling in the abdomen could be explained on the basis of cardiac failure; severe right-sided cardiac failure with less dyspnea than was present previously.

Dr. Wood: In the presence of a relatively normal

venous pressure?

DR. TAUSSIG: No. I had forgotten that. The mass in the right upper quadrant could be explained on the basis of gallbladder trouble.

DR. Wood: Dr. Moore, what is your opinion?

Dr. Carl Moore: I think the two most possible diagnoses are hepar lobatum with ascites, and carcinoma which presses on the portal system—not necessarily primary there.

DR. Wood: What is in favor of hepar lobatum? If that is the diagnosis, this could not be called latent syphilis,

could it?

DR. CARL MOORE: No. The nodular appearance of the liver is in favor of it, but I think this description is deficient in one respect. It reads, "There was one firm nodule in the anterior surface of the left lobe of the liver." The color of this nodule would make a lot of difference.

DR. Wood: I wonder if that could be seen at operation?

Dr. WILLARD ALLEN: I operated on this patient.

DR. WOOD: Did you see the nodule on the liver?

DR. ALLEN: I do not recall that. The diagnosis of ovarian cyst I may say, was made before we saw the patient in consultation. One thing against the diagnosis of ovarian cyst was the diffuse edema that the patient showed. Even malignant ovarian cysts do not produce edema of the abdominal wall. It is also noted in the record that the patient did not have obvious ascites. She was explored on the diagnosis of probable ovarian cyst, but none was found. There was one very unusual feature. Six or seven thousand cubic centimeters of turbid fluid were obtained. The pelvic organs were normal. The mass in the upper abdomen I think was transverse colon. The patient had diffuse edema of the mesentery and the transverse colon was fixed in the upper abdomen, and was very hard. The sigmoid colon was the same way. It could not be moved because of the profound edema in the sigmoid mesentery. I do not remember the nodule in the liver. We were unable to see it as I recall the situation. I do not think there were palpable gallstones. Since the transverse mesocolon seemed the same as the sigmoid mesocolon, we made a biopsy of the latter. The general conclusion was that this was a reaction to edema and possibly chronic inflammation.

Dr. Karl: Can hepar lobatum without cirrhosis cause ascites?

DR. WOOD: Yes, rarely, through syphilitic peritonitis as has been described by Stokes. What is in favor of hepar lobatum in this case?

DR. KARL: I should think the description of the mass at operation would be in favor of it.

Dr. Wood: Is it more in favor of that than of carcinoma of the liver?

Dr. KARL: I think so.

DR. Wood: Does the fact that the spleen is not palpable disturb you?

Dr. Karl: Not necessarily, because, as you point out, there may be no portal obstruction in hepar lobatum.

Dr. Wood: The spleen is palpable in less than one half the cases according to Stokes. How about the history of pain? Dr. Taussig suggested gallbladder disease. The characteristic pain of syphilis of the liver is spoken of as "pseudo-gall stone pain." It is quite characteristic, according to syphilologists, and the disease frequently is diagnosed gallbladder disease. So this pain does not necessarily point to the gallbladder. Dr. Moore, what about the low plasma proteins?

Dr. CARL Moore: There were only 2 gm. of albumin, which indicates some disturbance of hepatic function. Such a disturbance could result from syphilis of the liver, from cirrhosis or from carcinoma.

Dr. Wood: Would it result from carcinoma?

Dr. CARL MOORE: The carcinoma would have to be extremely extensive.

DR. WOOD: Yes, it is a little more in favor of a diffuse process. The diagnosis of hepar lobatum can be fairly well substantiated by the evidence we have so far. Dr.

Reinhard, have you any other suggestions?
DR. EDWARD REINHARD: Tricuspid disease merits some discussion, perhaps, but no murmurs to fit in with that diagnosis were ever mentioned, and syphilitic disease in the abdomen I think is by far the most probable

DR. CARL MOORE: There is one more remote possibility which might be mentioned. Dr. Allen, when he operated, thought this change might be of a lipomal or sarcomatous type. There are descriptions in the literature of diffuse lipoma of the gastrointestinal tract involving the mesentery, sometimes reaching considerable proportions, and sometimes causing intussusception terminally. I think it is far-fetched, but it should be mentioned.

Dr. Wood: Have you any suggestions, Dr. Fischel? Do you think this was probably hepar lobatum?

DR. WALTER FISCHEL: Yes, I thought it was syphilis from the start.

Dr. Massie: I think portal or central cirrhosis could be listed as possibilities. I think there might be some cardiac cirrhosis.

Dr. Wood: Yes. Now let us consider the last hospital admission, when the patient had signs of obvious

DR. REINHARD: I think this patient probably had a chronic peritonitis following perforation, leading to the contamination of the abdominal contents with E. coli.

Dr. Wood: How did it perforate—spontaneously or as

a result of trauma?

DR. REINHARD: It is possible to perforate the intestine in doing a paracentesis. It is totally unavoidable in

some cases.

Dr. Wood: Yes. It happens particularly in cases of tuberculous peritonitis. Do you not think the history here is suggestive? The acute symptoms came on the day following the paracentesis. Dr. Moore, do you think this was spontaneous or from trauma?

DR. CARL MOORE: I think it was more likely from trauma. It is possible that if lipomata were present it could have been an intussusception, but that is very

unlikely.

DR. CYRIL MACBRYDE: Chills and fever immediately followed the puncture, which fact is in favor of trauma-

tic perforation

Dr. Wood: We will probably find that there were a great many adhesions, which led to this accident. I think we can come to a definite opinion on this case. Everyone seems to agree that this patient had rheumatic heart disease with mitral stenosis. The evidence is somewhat suggestive of carcinoma of the liver, primary or secondary, but more in favor of hepar lobatum. Finally the patient developed terminal peritonitis. One feature we have not mentioned is the high nonprotein nitrogen at the end. Dr. Taussig, what do you think this indicates? Do you believe the kidneys will be normal?

Dr. Taussig: Yes, I do not think there is any reason to suppose there is kidney insufficiency, which usually occurs only terminally from liver death. Azotemia may have been secondary to dehydration—prerenal azotemia.

DR. Wood: Does that sound logical, Dr. MacBryde? Dr. MacBryde: It is a possibility, but it is hard to tell

how dehydrated the patient was.

DR. REINHARD: I think alimentary azotemia is unlikely. You only get alimentary azotemia when blood gets into the upper alimentary tract.

Student: How long, in the presence of intramuscular

bismuth does hepar lobatum continue?

Dr. Wood: That is a good question. Dr. Karl, would you expect a change immediately?

Dr. Karl: No. I think the lesion was well established by the time bismuth therapy was begun.

Dr. Wood: Are there any other questions?

Student: Is there a possibility that periarteritis nodosa might be considered?

Dr. Wood: You might think of it, particularly in view

of the terminal azotemia.

Student: That and the picture of rheumatic heart disease, liver involvement and joint pains. I was also wondering about the pathologic report on the biopsy which states that there were polymorphonuclear leukocytes about the small vessels.

Dr. Wood: Perivascular infiltration occurs rather commonly in many conditions. Ascites is not common in

periarteritis nodosa.

STUDENT: I think there is a possibility that the patient had a hypernephroma.

Dr. Wood: Yes, we might include it among the possibilities.

DR. WOOD'S DIAGNOSIS

Rheumatic heart disease with mitral stenosis. Hepar lobatum.

Terminal peritonitis.

CLINICAL DIAGNOSIS

Carcinomatosis. Carcinoma of liver (metastatic). Syphilis, tertiary.

Rheumatic heart disease. Mitral insufficiency and stenosis. Bronchopneumonia,

ANATOMIC DIAGNOSIS

Hepar lobatum. Serofibrinous peritonitis, 2,000 cc. Chronic passive congestion of the spleen. Chronic endocarditis of the mitral and aortic valves.

PATHOLOGIC DISCUSSION

Dr. Robert Moore: Four points have been raised in discussing this case. The first was the valvular disease of the heart. We did demonstrate chronic thickening of the mitral and aortic valves, and a small pericardial adhesion. With the history one must conclude that this patient had rheumatic fever sometime in the past. In view of the fact that the heart was of normal size, and the fact that no other changes of chronic passive congestion except those below the liver were observed, I doubt if the valvular disease of the heart played any important part in the disease.

The changes in the liver are typical of hepar lobatum, and there were no other demonstrable changes of syphilis in the organs. The diagnosis of nodular cirrhosis or portal cirrhosis of the liver has been suggested. There has been much discussion concerning the relation of syphilis to cirrhosis, and I believe opinion is beginning to crystallize that there is no significant relation, and that cirrhosis occurs no more frequently in syphilitic patients than in the general population. I would recommend a recent paper by Hahn in the September number of the American Journal of Syphilis, Gonorrhea, and Venereal Disease for this year. He reviews all cases of syphilis over a period of thirty years in the clinic of Dr. Earle Moore. He concludes that 5 per cent of persons with syphilis have significant disease of the liver, and that only about 25 per cent of these show any signs and symptoms.

In the absence of any dilatation of the ducts of the gallbladder I would say that the gallbladder disease did

not play any important part.

As to the pathogenesis of the peritonitis—we did not demonstrate any perforation, but that does not mean there was none. We see a fair number of examples of peritonitis in cirrhosis of the liver in which there has been no paracentesis, so that hematogenous peritonitis with an ascitic fluid is not an uncommon finding. The azotemia was not based on any lesions of the kidney.

Dr. Wood: I would like to ask one question: should

we have heard a murmur at the aortic area?

Dr. Moore: Not necessarily. It was not a high grade of stenosis, although the valves were involved.

Dr. Wood: Were they competent?

Dr. Moore: I do not believe a pathologist can answer that question.

DR. Wood: If we had heard a murmur we should have been confused. I should then have probably favored syphilitic heart disease with an Austin-Flint murmur at the apex.

Dr. Massie: Is there any explanation for the hemop-

tysis?

Dr. Parker Beamer: There were some dilated veins in the esophagus but it is questionable whether they were oozing blood.

CASE 36

PRESENTATION OF CASE

M. G. aged 32, a married housewife, entered Barnes Hospital for the first time on the Gynecological Service July 12, and was discharged July 25,

Chief Complaints.—Abdominal pain and fever.

Family History.—Mother died at 65 from heart trouble. Two brothers, one sister and the patient's

two children had allergic disorders. Her brother was called a "bleeder" because of protracted hemorrhage following tonsillectomy.

Past History.—The patient, a college graduate and former school teacher, had had hay fever, asthma and gastrointestinal allergy for many years. Headaches had been frequent. At the age of 15 she developed arthritis of the left hip which became stiff and three years later, after a plastic operation, motion was restored. Tonsils were removed at the onset of arthritis.

Present Illness.—Because of painful menstruation due, she was told, to an ovarian cyst, the patient was operated upon at another hospital. A few days later she developed a septic type of fever which persisted for some weeks. She was transferred to Barnes Hospital.

Physical Examination.—Temperature was 40 C., pulse 96, respiration 22, blood pressure 110/80. The only positive findings other than evident fever were limited to the pelvis where a large mass was felt to the right of the uterus. It was fluctuant and tender.

Laboratory Findings.—Blood count: red cells 4,-230,000, hemoglobin 83 per cent, white cells 14,600; differential count: juvenile forms 1 per cent, "stab" forms 17 per cent, segmented forms 60 per cent, lymphocytes 15 per cent, monocytes 7 per cent. Urinalysis: albumin, trace.

Course in Hospital.—Under twilight anesthesia, the mass was entered through a vaginal incision and a large amount of thick pus drained. On culture Staphylococcus aureus appeared. The temperature returned to normal within a few days and the patient was discharged on the thirteenth hospital day, apparently cured.

Second Hospital Admission.—June 21 to February 8, 1941.

Interval History.—On leaving the hospital, the patient was placed on a high caloric diet because of weakness and loss of weight. A severe diarrhea soon followed which, after investigation, was thought to be allergic in origin. At this time severe headaches became persistent, and one month after leaving the hospital, her usual attacks of fall hay fever began. Skin tests and trial diets revealed hypersensitiveness to many foods and ragweed pollen. With a restricted diet and injection of pollen extract, symptoms improved. In the spring of 1938, a violent attack of generalized urticaria and swelling of the lips appeared which was evidently due to an excessive intake of fruits. The wheals subsided somewhat when fruits were eliminated, but some appeared daily. Late in 1940, after the patient had been under considerable emotional stress and had become fatigued, diarrhea and headaches returned. Further dietary restriction was imposed but this caused loss of weight and was but partially successful. The patient was sent to the hospital for controlled supervision and further study.

Physical Examination.—Temperature was 37 C., pulse 88, respiration 18, blood pressure 100/68. The patient appeared to be undernourished. The

eyegrounds were negative. The nasal mucous membranes were pale and boggy. The tonsils were out. The lungs were clear. The heart was not enlarged. The rhythm was regular and the sounds of good quality. The abdomen was normal throughout as were the pelvis and extremities.

Laboratory Findings.—Blood count: red cells 4,-650,000, hemoglobin 74 per cent, white cells 5,150; differential count: eosinophils 5 per cent, "stab" forms 1 per cent, segmented forms 41 per cent, lymphocytes 41 per cent, monocytes 12 per cent. Urinalysis negative. Kahn, negative. Blood chemistry: sugar 65 mg. per cent, nonprotein nitrogen 23 mg. per cent, calcium 10.4 mg. per cent, phosphorus 3.1 mg. per cent. Skin tests: positive to many food and inhalant allergens.

Course in Hospital.—Under environmental control and a tolerated diet, the patient improved, in that symptoms subsided considerably and there was some gain in weight.

Third Hospital Admission.—August 17 to August 26, 1943.

Interval History.—Since last discharge, the patient's food tolerance had increased until she could take a liberal diet without symptoms. She gained 21 pounds in weight and was much improved. Because of a somewhat lowered basal metabolic rate, thyroid in daily amount of 1 to 2 grain was taken. A right ovarian cyst which had appeared was under periodic observation.

For two years the patient had noticed that she bruised easily, and this tendency gradually increased. For one year menstrual periods had become prolonged and were increasingly profuse, and she noted that she was becoming weak and easily fatigued. Following her last period, on August 18, she remained in bed, and at that time noticed many red and purple spots scattered over the body and extremities, with a few on the face. On the day previous to admission her gums began to bleed and there was a slight bloody discharge from the nose. The stools showed some streaking with bright blood. No abdominal pain or joint pains appeared.

Physical Examination.—Temperature was 37 C., pulse 80, respiration 18, blood pressure 108/66. The patient was well-nourished and apparently comfortable. The skin was pale. There were numerous petechial spots and a few ecchymotic areas varying in size to 4 cm. in diameter scattered over the trunk and extremities. The lower extremities were almost covered with this eruption. The palpebral conjunctivae contained a few petechiae but no hemorrhages were observed in the eyegrounds. A fresh blood clot was adherent to the right middle turbinate. A few spots appeared on the buccal mucosae. The gums were oozing slightly. The lungs were clear. The heart apex impulse was felt in the fourth interspace 6 cm. to the left of the midsternal line. The rhythm was regular and the sounds clear. The abdomen showed a suprapubic midline scar. The spleen was felt at the left costal margin on inspiration. Its consistency was not described. The liver was not palpable. Rectal examination revealed the uterine corpus to be pushed to the left by a mass about 6 cm. in diameter in the right adnexal region. Vaginal examination was not done because of bleeding. No enlarged lymph nodes

Laboratory Findings.—Blood count: red cells 2,-810,000, hemoglobin 7.9 grams, white blood cells 5.800: differential count: segmented forms 74 per cent, lymphocytes 26 per cent, platelets 1 per 1,000 red blood cells. Anisocytosis 3 plus, poikilocytosis 3 plus, achromia 2 plus, coagulation time (Howell method) 23 minutes, clot retraction none, bleeding time 73 minutes, prothrombin time normal, hematocrit 26, mean corpuscular volume 99 cu. mic., mean corpuscular hemoglobin 31, mean corpuscular hemoglobin concentration 31 per cent. Sternal marrow-differential count: basophils 1 per cent, eosinophils 1 per cent, "C" myelocytes 30 per cent, metamyelocytes 30 per cent, band forms 10 per cent, segmented forms 7 per cent, phagocytic clasmatocytes 1 per cent, primitive cells 19 per cent, reticular cells 1 per cent, normoblasts 91, late erythroblasts 21, early erythroblasts 5; normal megakaryocytes present with an occasional young one. Urinalysis: albumin faint trace, microscopic, occasional red blood cell. Stool: guaiac test negative, benzidine positive. Kahn negative. Liver function tests: total proteins 5.6 grams per cent, albumin 3.6, globulin 2.0; hippuric acid test 86 per cent excretion of sodium benzoate; cephalin flocculation test negative.

Course in Hospital.—Two days after admission, the patient developed cramping abdominal pain followed by diffuse, prolonged menstrual bleeding. She was given six transfusions during the first five days, after which the red blood count was essentially the same as on admission. The patient developed a persistent severe headache, but no neurologic signs were detected. On August 26 a laparotomy was performed and the spleen was removed. It was about three times the normal size. Exploration showed the abdomen to be normal except for an enlarged uterus. Following the operation, the patient did not regain consciousness. The pupils were widely dilated and fixed, and the fundi revealed many hemorrhages. At 8:30 p. m. the pulse rate and temperature were rising, the blood pressure was 130/80 and pathologic toe signs appeared. At 8:50 p. m. respirations ceased, the pulse was thready and became imperceptible. Exitus occurred a few minutes later.

CLINICAL DISCUSSION

DR. HARRY ALEXANDER: There is not much question concerning the final diagnosis in this case. The patient evidently had thrombocytopenic purpura. However, she also had allergy, with a very unusual manifestation. I saw her at the time of her second hospital admission, so I can add something to the history. It is rare for a person of 30 to have such intense food allergy as to be compelled to go on an extremely restricted diet. And even this restricted diet did not take care of her allergy. One sometimes sees these intense allergies in children with eczema. This woman of 30, who throughout her life apparently had gotten along pretty well with her

allergy, suddenly had an acute episode. She apparently had a shifting threshold of sensitivity. Under certain conditions all her latent sensitivities manifested themselves. On the other hand, during the last year of her life she was able to eat almost anything. The violent attack of allergy during her second hospital admission seemed to be provoked, at least in part, by an emotional upset. The relation of her allergy to the purpura may have been based on her inadequate diet. Citrus fruits caused her violent allergic reactions, and she practically never ate them. She ate very few vegetables. Perhaps a vitamin C deficiency may have had some bearing on the bleeding tendency. Dr. Moore, do you feel that that would be an important causal factor?

DR. CARL MOORE: I doubt it very much. She had these bleeding manifestations over a period of a year or more. Over that period, with an avitaminosis C, one would expect some gum changes. Furthermore a vitamin C deficiency would not reduce the platelet count. I doubt

that it played an important role.

DR. ALEXANDER: While we are on the subject of vitamins, what about the so-called vitamin P?

Dr. Moore: No one knows very much about vitamin Some maintain that there is such an entity and that it has something to do with capillary permeability. Others deny the existence of such a factor, and believe that Szent-Gyorgyi was wrong. Personally, I rather incline to the latter view. We had occasion to use vitamin P on ten or twelve patients some time ago and I did not observe that it had any effect at all.

Dr. Alexander: What about vitamin K?

Dr. Moore: There is no reason to suppose that this patient had a deficiency of vitamin K. There was no abnormality of absorption.

Dr. Alexander: Then you would dismiss any vitamin

deficiency as being relevant?

Dr. Moore: Yes.

DR. ALEXANDER: During the course of her illness she received various drugs, acetylsalicylic acid, ephedrine and amytal, for example. Certain drugs may cause thrombocytopenic purpura. It is my understanding that when they do, it is not a drug idiosyncrasy, but only appears on repeated administration of the drug-true drug allergy. Is that correct?

DR. MOORE: Yes, I believe it is. There is one dis-

tinguishing factor about thrombocytopenic purpuras which are caused by sensitivity to drugs. The megakaryocytes in the bone marrow are vacuolated and the nuclei are pyknotic. These changes are relatively easy to identify, and this patient did not have them.

Dr. Alexander: There are on record reports of cases of thrombocytopenic purpura caused by food allergy. One is a report by Madison and Squier of three cases. In the discussion of these cases I recall that two other cases were described. It is true that when so-called allergic purpura occurs, without thrombocytopenia, it may be caused by food. It is interesting, but probably coincidental, that in those cases the eruption is frequently only on the legs. I do not know if that is characteristic of thrombocytopenic purpura or not. In this case there was an exaggerated eruption on the legs.

One wonders if it is valid to consider that food allergy may cause thrombocytopenic purpura. The reports unfortunately do not contain any too complete laboratory data. The investigators, however, are apparently committed in their minds that it occurs. If anyone could get thrombocytopenic purpura from food allergy, certainly this patient would be the one to do it. I am sure I do not know whether this is a real clinical entity. Do you know, Dr. Moore?

Dr. Moore: No, I do not. I have talked with Dr. Madison, who reported these cases, and he is convinced. Once or twice in his experience splenectomy was carried out on such a patient and recovery occurred, but in one person there was a recurrence when food allergy developed again. It is interesting that Dutton in 1938 reported thrombocytopenic purpura caused by sensitivity to orange juice and grapefruit juice.

Dr. Alexander: You mention the megakaryocytes. In this case they were apparently normal. There was one young form. I wonder if you would discuss under what circumstances the megakaryocytes are normal and

under what circumstances abnormal?

Dr. Moore: One of the real advances that has come in diagnosis is the examination of the bone marrow in patients with thrombocytopenic purpura. There are essentially three possible conditions: (1) an absence of megakaryocytes as a result of which no platelets are made by the bone marrow; (2) the megakaryocytes may be either normal or greatly increased in number, with all maturations present, which is the usual picture in thrombocytopenic purpura; (3) the type of bone marrow reaction which one sees in allergy to drugs or to toxic substances like benzol, in which the megakaryocytes show qualitative changes. No one has yet reported what the megakaryocytes show in these so-called cases of food allergy. I have shared your skepticism, Dr. Alexander, about the ability of food allergy to cause thrombocytopenic purpura. I have never seen such a

Dr. Alexander: The bleeding in these cases presumably is caused by lack of circulating platelets. Is that cor-

Dr. Moore: It is probably caused by two factors: a capillary abnormality of some sort and the absence of

DR. ALEXANDER: If there are normal megakaryocytes the inference is that the platelets are destroyed in the

circulating blood?

DR. MOORE: There are two points of view about that: one that they are destroyed and the other that there is a lack of a maturation factor similar to that in pernicious anemia. I personally believe there is actual destruction by the spleen.

Dr. Alexander: An anti-platelet serum has been produced, which destroys platelets in vitro, and destroys platelets of the animal whose platelets are used as antigen. You believe that the fault lies with the

megakaryocytes in most of these cases?

DR. MOORE: Yes. Either that there is a maturing factor which is absent or is being depressed or that the megakaryocytes are working overtime and the spleen removes them abnormally.

DR. ALEXANDER: What is chronic thrombocytopenic purpura and what is the difference between so-called chronic and acute cases? Is there a qualitative differ-

Dr. Moore: I am not sure that there is. There is a tendency for the acute cases to be caused by other factors such as drugs. The chronic variety is more likely to be the essential form. I have the feeling that essential thrombocytopenic purpura can be either acute or chronic, but I do not know of any conclusive evidence one way or the other. This woman's was apparently the chronic type ending in an acute phase.

Dr. Alexander: So far as treatment is concerned, is there any difference? How would you treat a case of chronic or chronically recurring thrombocytopenic

purpura?

DR. MOORE: If there were a good number of meg-akaryocytes in the bone marrow I would get the spleen out as soon as possible, because I have been impressed with the frequency with which intracranial hemorrhage occurs and causes death.

Dr. Alexander: How would you treat an acute case? Dr. Moore: The same way, but that is a personal point of view. One might transfuse the patient and try to produce a spontaneous remission. Most people would probably prefer this latter method, and then if remission did not develop they would take out the spleen.
DR. ALEXANDER: What about the operative risk? What

is the operative mortality?

Dr. Moore: Between 5 and 10 per cent, but I should imagine that the mortality from waiting to operate would approximate that figure. There are no statistics on the procrastination mortality.

DR. ALEXANDER: What about ligation of the splenic

DR. MOORE: That would probably work but there is no real reason to do it. The spleen is usually small in these cases and it can be removed just as fast as the vein can be ligated.

DR. ALEXANDER: How rapidly does bleeding stop after splenectomy? How soon may one expect the hemor-

rhagic tendency to improve?

DR. Moore: Usually the surgeon can note that the oozing stops on the operating table. Bleeding may continue, however, for from three to five days or longer and then subside. No one knows what causes this variability. It is the rule for the oozing to stop almost immediately.

DR. ALEXANDER: This patient did not regain consciousness after operation. What does that suggest, Dr. Rein-

hard?

DR. EDWARD REINHARD: She probably had an intracranial hemorrhage.

Dr. ALEXANDER: What is the incidence of this?

DR. REINHARD: It is extremely rare as far as reported cases go. Longcope reported five cases in 1917, but there have been relatively few cases in the literature—twenty or twenty-one altogether. In a series of 150 cases of thrombocytopenic purpura there were only four cases of intracranial hemorrhage, and only three of these patients died.

Dr. Alexander: Dr. Duden, you saw this patient-

have you anything to add to this discussion?

Dr. Charles Duden: One or two things impressed me. One was that whereas this patient had been so sensitive in previous years to food, in the eighteen months before her death she had eaten almost everything, even orange juice and citrus fruits. The other thing was that as these manifestations of allergy subsided, the manifestations of bleeding occurred. One cannot say it is cause and effect, but it looks suspicious.

Dr. Alexander: Does anyone wish to ask Dr. Moore

any other questions?

DR. CARL HARFORD: Am I correct in believing that occasionally when the spleen is removed in this disease the bleeding stops, but the platelet count does not return to normal? If so, can that be explained on the

basis of a difference in capillary fragility?

Dr. Moore: I think so. Microscopically there has been noted a definite anatomic abnormality of the capillary loops in thrombocytopenic purpura. The capillary loops in the bed of the fingernail, for example, are abnormal. In normal persons these capillaries when ruptured with a micropipette, will shrink down and become constricted for two hours and then return to normal. These capillaries do not constrict in thrombocytopenic purpura but keep on oozing, according to the investigations of MacFarland at Oxford. Many believe that the first thing that happens after splenectomy is that the capillaries begin to react in a normal manner, and only sometime later does the platelet count go up. I have heard of the case of a young man whose platelet count did not return to normal for a year, but he never had any hemorrhagic manifestations after splenectomy, though he lived a normal, hard-working life on a farm. There must be a difference in the effect on capillaries and platelets. I think that the reported cases do not sufficiently emphasize the frequency of intracranial hemorrhage. There have been thirty cases of thrombocytopenic purpura at the Children's Hospital in the last five years. Six patients died of intracranial hemorrhage. Three of them came into the hospital unconscious, with blood in the spinal fluid, and in all three cases splenectomy was done against the surgeon's wishes. All three died with extensive hemorrhage. I am inclined to think statistics in the literature, as summarized by Dr. Reinhard, underemphazise the problem.

Dr. Alexander: Are there further questions? STUDENT: May I ask Dr. Moore a question? David's disease is mentioned in Wintrobe as a hormonal disturbance which leads to a poorly understood thrombocytopenia. Since this woman was approaching the menopausal age, had a mass in the pelvis and had menstrual disturbances, could her thrombocytopenia have been caused by a hormonal disturbance?

DR. MOORE: I know that reference. But I think those older reports have to be reevaluated in the light of bone marrow findings. In those reports there is no indication of what the bone marrow showed.

DR. ALEXANDER: Do you remember Minot's three cases several years ago of thrombocytopenic purpura occurring only at the menstrual period?

DR. MOORE: That was a true thrombocytopenic purpura. Dr. Minot had the uterus removed and the episodes stopped. Dr. Doan, whose cases were spoken of before, did not believe Dr. Minot's reports but he had the patient's uterus removed and there was never another thrombocytopenic episode.

DR. KEITH WILSON: I would like to ask about the histamine and anaphylactic theory of thrombocytopenic purpura. In Quick there is an exposition of it-in shock the release of the histamine accounts for the capillary dilatation and permeability. Quick believes, and it has been demonstrated in animals, that platelets agglutinate when histamine is injected or when there is anaphylactic shock. He believes that platelets usually are found in the internal organs and, therefore, in typical anaphylactic thrombocytopenic purpura the platelets completely disappear from the circulation, whereas in the primary disease the platelets are not completely gone. He brings evidence that where drugs and foods give an anaphylactic reaction, histamine may account for platelet agglutination and disappearance. He believes that platelets are not the source of histamine but rather are trying to neutralize it. They are subject to agglutination and lysis. I am wondering how valid this theory is. One of these cases has been correlated with bone marrow studies.

CLINICAL DIAGNOSIS

Idiopathic thrombocytopenic purpura. Abscess, pelvic, postoperative. Food allergy.
Malnutrition.

DR. ALEXANDER'S DIAGNOSIS

Thrombocytopenic purpura. Food allergy.

ANATOMIC DIAGNOSIS

Hemorrhage with encephalomalacia involving the right occipital lobe of the brain (history of thrombocytopenia with a thrombocyte count of 5,800).

Subarachnoidal hemorrhage over the right parietal and occipital lobes of the brain.

Subdural hemorrhage, moderate.

Extradural hemorrhage along the basilar part of the occipital bone on the left side.

Ecchymoses and petechiae over the entire surface of the body, beneath the scalp, in the parietal and visceral pleurae, in the pericardium, beneath the endocardium, in the mucosa of the stomach, colon and urinary bladder.

Hemorrhage into the peripelvic tissues of the left

Clotted blood in the uterine cavity.

PATHOLOGIC DISCUSSION

DR. Margaret Smith: The bone marrow and spleen showed changes, all of which have been frequently reported in thrombocytopenic purpura. In the bone marrow megakaryocytes were numerous and appeared normal in character. There was hyperplasia of the erythroid elements of the bone marrow. The malpighian bodies of the spleen were hyperplastic and occasional megakaryocytes were seen in the splenic sinusoids. Polymorphonuclear leukocytes were numerous in the splenic pulp. The cerebral hemorrhage was extensive and was unquestionably the cause of death.

DR. CARL MOORE: I think we might ask ourselves, in spite of the intracranial hemorrhage, why this woman died. I think there is no doubt but that she had the intracranial hemorrhage before she was sent into the operating room. That does not explain the fact that she continued to have bleeding manifestations after splenectomy. I would like to think that if she had lived another twelve hours the manifestations of bleeding would have stopped, but I think it is true that we must accuse ourselves of waiting too long for surgery.

ABSTRACTS AND DIGESTS

ALLERGIC REACTION IN THE GALL-BLADDER

The Allergic Reaction in the Gallbladder. Experimental Studies in the Rhesus Monkey. Matthew Walzer, Irving Gray, Max Harten, Saul Livingston and David Grayzel. Gastroenterology 1:565 (June) 1943.

By sensitizing the gallbladder of Rhesus monkeys with single or multiple injections of allergenic serum and the intravenous injection of analogous allergen one week later, it was demonstrated that it could be the site of an allergic reaction. This reaction was characterized grossly by transitory edema, hyperemia and increased mucous secretion without spasm and, histologically, by an edematous reaction with cellular infiltration including an increased number of eosinophils.

Comment: The clinician has known that symptoms in the right upper quadrant have been relieved in some patients by taking certain foods out of the diet and, before the advent of cholecystography, such a regimen often relieved the symptoms when surgical therapeusis failed to do so.

This experimental work presents the first substantiating histologic evidence of the clinical concept of allergic cholecystitis. Despite the applicability of several theories the exact manner in which the gallbladder becomes sensitized in human beings is not clear.

C. H. EYERMANN, M.D.

QUININE IN RESPIRATORY INFECTIONS

Uses of Quinine in the Symptomatic Treatment of Acute Respiratory Infections. George S. M. Cowan. South. M. J. 36:798 (December) 1943.

While quinine is specific for malaria, its therapeutic value in acute respiratory infections has been questioned by some. In these conditions it is given for its analgesic, antipyretic and general tonic effects.

Sollmann¹ in referring to the use of quinine in colds says that like other antipyretics it has an analgesic effect in this condition. He recommends doses of from 1 to 3 grains. Commenting on its antipyretic action, Sollmann says that small doses suffice in colds and that quinine like other anti-

^{1.} Sollmann, T.: Manual of Pharmacology, 6th ed., p. 594, Philadelphia, W. B. Saunders Co., 1942.

pyretics is more effective when the temperature tends naturally to fall. Although quinine does not reduce fever so rapidly or to the same extent as drugs of the antipyrine group, it may maintain the temperature at a low point for a longer time (Cushny2). This more prolonged action is, in my opinion, of importance in the treatment of colds and influenza.

Among the more optimistic opinions concerning the value of quinine in colds is that of Solis-Cohen and Githens,3 who write:

"Quinine is useful in coryza, especially in the incipient stage when it may abort the attack or at all events shorten its course and mitigate its severity."

At a large industrial plant in Virginia, Schnurman made a statistical study of 13,000 employees during the influenza epidemic of January 1941. Half of these employees took 5 grains of quinine sulfate daily for a period of two weeks, while the other half took no quinine. A differential study revealed that there were only one fourth as many cases of influenza in the quininized group as compared with the non-quininized control group. During the period of quininization the number of influenza cases waned, only to rise again when the quinine was discontinued.

In Florida, Barge of Miami, in 1942, reported evidence indicating that the incidence of influenza is much lower among persons taking quinine than among those not using the drug.

Cowan, while serving during 1941 as a full time contract surgeon with the CCC in various camps in Georgia, Florida and North Carolina, administered quinine to one half of all cases with incapacitating upper respiratory infections. The other half, or control group, was treated with the usual antipyretics. A comparative evaluation of my experience concerning the action of quinine in upper respiratory infections follows:

(1) Quinine provided satisfactory symptomatic relief of these conditions.

(2) Quinine was observed to have an excellent antipyretic effect: at least the equivalent of the usual antipyretics such as acetylsalicylic acid and sodium salicylate.

(3) As is usual with antipyretics, quinine was observed to have an analgesic effect.

The usual dosage of quinine observed to have an antipyretic effect in cases of respiratory infections was 5 grains, four times a day. There were very few quinine idiosyncrasies observed and these were never serious. The symptoms, when present, consisted primarily of severe ringing in the ears, headache and in some instances nausea.

Comment: While it seems evident that quinine may be of value in upper respiratory infections, the recommended dosages of 5 grains four times a day will, in the majority of patients, cause the disagree-

2. Cushny, A. R.: Pharmacology and Therapeutics, 12th ed., p. 731, Philadelphia, Lea & Febiger, 1940.
3. Solis-Cohen, S., and Githens, T. S.: Pharmacotherapeutics, New York, C. Appleton & Co.

able symptoms of cerebral congestion, tinnitus and decreased auditory perception to such a degree as to mitigate against its use.

AUGUST A. WERNER, M.D.

FROM THE COMMITTEE ON CARDIAC DISEASES

ACUTE PERICARDITIS

Acute Pericarditis With Special Reference to Changes in Heart Size. Louis Wolff. New England J. Med. 229:423, 1943.

Five cases with certain common features form the basis for this report. Patients were young or middle aged men with normal hearts, with respiratory infection complicated by acute pericarditis showing the remarkable feature of a rapid, conspicuous enlargement in the size of the heart, without pericardial effusion, followed by a slower reversion toward normal and recovery without any demonstrable cardiac abnormality. Three of these cases were diagnosed as atypical pneumonia.

It is stated that the location and distribution of pericardial rub is of some significance. In most cases in which an excess of fluid accumulates in the pericardial cavity the friction sound disappears in the region of the apex while persisting over the base of the heart. The heart sounds are muffled, distant or absent in cases of effusion, much more than in cases of dilatation, although in the latter the quality of the sounds may change and gallop rhythm may be present. Transition from absolute dulness to normal resonance helps in the diagnosis.

Dilatation of the heart may occur without necessarily resulting in circulatory disturbances. However, in the presence of pericardial effusion, even when not large, it may cause profound alterations in the circulation. Yet, in some cases, large colleclections of fluid are compatible with an apparently normal circulation. The importance of not mistaking the heart enlargement for pericardial effusion is emphasized.

Reliance on roentgen ray examination in the differentiation of cardiac dilatation from pericardial effusion has been the cause of many errors in diagnosis. The absence of pulsations on fluoroscopy may indicate fluid, but feeble pulsations may be misleading. The most reliable procedure is a daily roentgen ray examination of the heart. Low voltage in the electrogram may be found when excess fluid is present, but the final proof of the existence of excess fluid depends on its actual demonstration by paracentesis, operation or autopsy.

The diagnosis of pericarditis in the five cases cited was made by roentgen ray, the electrocardiogram, teleroentgenogram, before, during and after enlargement of the heart. Paracentesis was done when indicated. The presence of pericardial effusion was eliminated in the same way.

It has been shown that, when the characteristic electrocardiographic pattern of acute pericarditis

occurs, diffuse subepicardial myocarditis is present. This pattern was observed in the cases cited.

It was noted, finally, that the relatively slow heart rate, sinus arrhythmia and paroxysmal auricular fibrillation observed in these cases suggest that preponderant vagal tone may occur in the presence of pericardial inflammation and act as additional factors favoring cardiac dilatation. A detailed report was made of all five cases. The clinical features of pericardia were similar in all. It occurred in acute respiratory infection after the first week of the original infection or as a secondary infection following a minor or severe case, after it had run its course.

This article is of interest in that it calls attention to the possible cardiac complications resulting from acute respiratory infections.

L. R. W.

SULFANILAMIDE IN RHEUMATIC HEART DISEASE

The Prophylactic Use of Sulfanilamide in Children With Rheumatic Heart Disease. Charles R. Misseldorf and Milton H. Robbins. J. Lab. & Clin. Med. 28:1323, 1943.

From the standpoint of the abstracter or teacher it is unquestionably more pleasant to call attention to matters of knowledge or methods that represent an advance in medicine, but from the point of the clinician it is just as important to know and call attention to theories or procedures that may have met with popular acclaim and more or less general acceptance but regarding which there exists a fallacy or at least a questionable doubt.

The later objective guided selecting of this article for review.

It is always most unfortunate when certain drugs or methods are presented to the general practitioner before sufficient time has elapsed and sufficient work has been carried out under strict clinical supervision to establish beyond the question of doubt that it is not only efficient and safe but also not to lead one to hazard predictions that will not be fulfilled.

So miraculous were the effects secured by the sulfa group of remedies that almost any statement made with regard to them was at once accepted as true. Thus the theory of giving them in cases of rheumatic carditis in children was unfortunately accepted immediately by the profession without further question.

However, after careful thought on the part of those who were familiar with the pathologic picture of rheumatism and who furthermore appreciated that the etiology of the disease has not as yet been firmly established, it seemed wise not only to await the passage of more time but to conduct further and more detailed experiment.

While the streptococcus is at present the strongest contender as the etiologic factor in rheumatism, there is still much in favor of the filtrable virus and

the allergic theories. If these later should prove to be causative it is easy to see that the sulfa drugs would be of no value.

There can be no question as to the honesty of the investigators who have stressed the value of the sulfa drugs administered in prophylactic doses at the seasons of the year when rheumatic infection is most likely to become reactivated but also there is no question but that the observed effects in the hands of equally competent observers have been too varied to accept completely all that has been advocated in this regard.

"Stimulated by the favorable report of Thomas and France as well as by that of Coburn and Moore in 1939" the authors began in September of 1939 administering sulfanilamide to a group of children attending their cardiac clinic. In all fifty-five children were observed. There were twenty-five in the treated group and thirty in the control group. They varied in age from 6 to 14 years at the time of the treatment.

After a trial period of a week during which time 5 grams (325 Gm.) of sulfanilamide were given three times a day to ascertain if there was any toxic reaction to the drug the dose was increased to 10 grains morning and evening and this was continued for the remainder of the treatment period.

The drug was administered during two treatment seasons, from September 1939 through May 1940 and from September 1940 through May 1941. The actual period of treatment through the two seasons was about eight months.

All the cases were carefully observed and controlled by careful laboratory work.

The authors corroborate the observations of other workers that toxic effects were seldom noted on the dose administered and when noted were mild.

The cases showing a toxic reaction are recorded, all of which ceased promptly on removal of the drug.

They conclude that a prophylactic effect could not be observed in the group treated. One of their patients developed subacute bacterial endocarditis which is contrary to the statement of Thomas and her coworkers who sated "that subacute bacterial endocarditis did not develop in treated children."

The ultimate conclusion of the authors reached in this study was that sulfanilamide does not appear to be of any effect in preventing recrudescence.

In analyzing this paper it is of course at once apparent that the group was rather small.

While this observation is disappointing it is possible that some of the sulfa drugs yet to be developed may solve the problem but it illustrates that conclusions hastily drawn and announced before sufficient time has elapsed are dangerous.

That some drug is prophylactic in this disease is more than probable, and discouragement must not be allowed to rule, but conclusions must not be drawn too hastily.

THE JOURNAL

of the

Missouri State Medical Association

623 Missouri Bldg. Telephone: Newstead 0404-05

Subscription - - - \$3.00 a year in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent.

JANUARY, 1944

EDITORIALS

ANNUAL ASSESSMENT

The House of Delegates of the Missouri State Medical Association voted at the Annual Session in St. Louis, April 18, 19, 20, 1943, to assess each member of the Association \$4.00 for 1944. The assessment is in addition to the regular \$8.00 dues per member. This action was deemed necessary because of the loss of revenue through waiver of dues for members in military service.

According to the Constitution and By-Laws all members whose dues and assessments have not been received in the Association office on or before April 1 of the year for which they are levied, shall stand suspended until their names are properly reported and dues and assessment for the current year are paid.

ANNUAL CONFERENCE OF SECRETARIES AND EDITORS

The Annual Conference of Secretaries and Editors of Constituent State Medical Associations was held at the American Medical Association on November 19 and 20. Problems confronting the medical profession on the present civilian front as well as many contemplated ones following cessation of the war were discussed. Representatives of various state medical associations related procedures that have been used in their states by Federal bureaucracy in establishing the U.S. Children's Bureau program for obstetric and pediatric care for the wives and children of men in service. One speaker asserted that the medical profession of his state was "whipped into line" in acceptance of the program. The organized medical profession of this particular state had previously turned down the plan on two occasions. Following these actions the "heat" was turned on the state association by various groups and politicians under the guise of "Where's your patriotism?" It was further pointed out that this program was undoubtedly a "foot

in the door" for federalized medicine and that passage of the Wagner-Murray-Dingell Bills would complete the entrance.

Remarks presented relative to the problems confronting those physicians returning from military service gave much food for thought. Locations must be found, proper distribution will be necessary, opportunities for completing internships and residencies as well as further medical education must be provided and additional medical facilities in rural areas established. It was suggested that state and local medical societies through postwar planning committees can begin the solution of these problems at once.

The general activities of the Council on Medical Service and Public Relations to date were reported which include study of various medical service plans now in operation, study of proposed Federal legislation now pending and the collection of facts and statistics relating to medical care. Dr. G. Lombard Kelly, Dean of the University of Georgia School of Medicine, has been employed as secretary of the council.

The desire and need for an improvement in the public relations of organized medicine was an underlying current manifested by the various discussions throughout the conference.

At a dinner meeting of editors of state medical journals an interesting paper was given, outlining the work of the Council on Pharmacy and Chemistry of the American Medical Association. This council undoubtedly has helped in a large measure to improve the drugs and pharmaceutical preparations used in medicine as well as aiding in the elimination of unscrupulous advertising for such.

FUNDS FOR RELOCATION OF PHYSICIANS

Under date of October 1, the President transmitted to Congress supplemental estimates for the United States Public Health Service, amounting to \$4,427,550. It was contemplated that of this total \$1,000,000 would be used by the Service to supply medical care to civilians in critical areas. Such care, it was proposed, would be supplied in one of two ways: (1) by the assignment of medical officers of the Service to such areas to treat civilians under a fee schedule agreed on by the Service and the State Department of Health; or (2) by inducing civilian physicians to relocate to the critical areas by paying them a relocation allowance of \$250 a month for three months plus moving expenses.

These estimates were referred to the House Committee on Appropriations which refused to include in the First Supplemental National Defense Appropriation Bill for 1944 (H.R. 3598) the requested funds for supplying medical care to the critical areas and justified its action as follows:

"The committee in rejecting the Budget request does not minimize the need or the seriousness of the situations which exist. It does hesitate to inaugurate a program of this character with Federal funds to provide direct medical attention to the civilian pop22

ulation with physicians paid by the Federal Government. The committee has the opinion that out of the cooperative efforts of the Federal Government, the medical associations, the State departments of health, and the communities themselves. there will and should come a concerted and spontaneous effort to provide this need. Most of it is in war industry areas and it is inconceivable that such communities working with the industries, the affected population, and State and local authority, cannot inaugurate and maintain an adequate publicspirited program, financially sound, to serve this need. If the affected areas cannot and will not solve their local needs it may be necessary for the Federal Government in the interest of the general public health to step in, but until then the committee feels that Federal funds should be withheld under the contemplated procedure."

In the Senate, H.R. 3598 was amended, at the instance of Senator Russell of Georgia, to authorize an appropriation of \$345,000 for use by the Public Health Service in providing medical care to civilians in critical areas subject to the following conditions and restrictions:

"Provided, That the Surgeon General is authorized, on application of a municipality, county, or other local subdivision of government duly approved by the State Health Department having jurisdiction over said municipality, county, or other local subdivision of government to enter into agreements with private practicing physicians and dentists under which, in consideration of the payment to them of a relocation allowance of not to exceed \$250 per month for three months and the actual cost of travel and transportation of the physician or dentist and his family and household effects to the new location, such physician or dentist will agree to move to and engage in the practice of his profession in such area for a period of not less than one year: Provided, however, That no such contract shall be made with any physician or dentist unless such physician or dentist shall be admitted to practice by the State authority having jurisdiction of such new location: Provided further, That each such applicant subdivision shall contribute \$100 to the total cost of such relocation allowance, travel, and transportation costs of each such physician or dentist and his family obtained by said applicant."

The bill passed the Senate with this amendment in it. It will now be considered by a Conference Committee composed of representatives on the part of the House and on the part of the Senate, in an effort to adjust the differences in the bill as it passed the House and as it passed the Senate.

SUBSTITUTE FOR TALC ON RUBBER GLOVES

Reemphasizing the very serious surgical hazard from the use of talc as a dusting powder for rubber gloves, M. G. Seelig, M.D.; D. J. Verda, M.D., and F. H. Kidd, M.D., St. Louis, recommend in The Journal of the American Medical Association for December 11 that potassium bitartrate be used as a substitute.

NEWS NOTES

The sixth annual Forum on Allergy will be held at the Statler Hotel, St. Louis, January 22 and 23.

Dr. Frank L. Feierabend, Kansas City, was a guest of the Denver Medical Society at Denver, Colorado, on December 7, and spoke on "Progress of Medical Service Plans.'

Dr. William M. West, Monett, has deeded his hospital at Monett to the Vincentian Sisters of Charity of Perrysville, Pennsylvania, who will operate it as a general hospital available to the pub-

A Johnson County Medical Society policy committee was appointed recently as a part of the executive board of the county health unit. Members appointed are Drs. R. Lee Cooper, Warrensburg; G. W. Grove, Knob Noster, and Kelly Rawlins, Holden.

Dr. Herman E. Hillebee, Senior Surgeon and Medical Officer in charge of the tuberculosis control section of the U.S. Public Health Service, was principal speaker at the annual meeting of the Tuberculosis and Health Society of St. Louis, December 6. He spoke on "Tuberculosis Programs in War."

The following officers of the Kansas City Southwest Clinical Society have been elected: President, Dr. Max Goldman; vice president, Dr. J. A. Billingsley; secretary, Dr. W. M. Korth; treasurer, Dr. H. S. Valentine; director of clinics, Dr. Carl B. Schutz; associate director of clinics, Dr. Vincent T. Williams; editor, Dr. E. H. Skinner; executive committee, Drs. J. V. Bell, L. Lafe Bresette, Carl F. Ferris, W. M. Ketcham, Ira H. Lockwood, J. Milton Singleton and J. E. Stowers.

DEATHS

Longstreth, Wallace I., M.D., Excelsior Springs, a graduate of the St. Louis College of Physicians and Surgeons, 1909; member of the Clay County Medical Society; aged 64; died November 6.

Martin, Edward W., M.D., Kansas City, a graduate of the University Medical College of Kansas City, 1901; member of the Jackson County Medical Society; aged 67; died November 9.

Findley, Eldon Marshall, M.D., Graham, a graduate of Harvard Medical School, 1916; member of the Nodaway-Atchison-Gentry-Worth Counties Medical Society; aged 62; died November 18.

Robertson, John T., M.D., Cabool, a graduate of the Kansas City Medical College, 1894; member of the South Central Counties Medical Society; aged 76; died November 27.

INCIDENTALLY

FROM THE EXECUTIVE SECRETARY

Some people are asserting that the Wagner-Murray-Dingell Bills have no chance to pass the present Congress and that efforts in combating passage of this particular legislation may now be reduced. -Acceptance of such an idea may result in the public and the medical profession coming out on the short end of the score as the Notre Dame team and rooters would undoubtedly prophesy following their recent football game with Great Lakes Naval Training School.

Many physicians have been passing out to their patients, both men and women, copies of the eight page pamphlet from the National Physicians Committee for the Extension of Medical Service, Pittsfield Building, Chicago 2, Ill., entitled "\$3,048,000,-000 of Political Medicine Yearly in the United States."-Numerous physicians have reported that patients show interest in this brief pamphlet, ask questions about it, and some request extra copies. -A physician may secure additional copies of the pamphlet free of charge by writing the National Physicians Committee.

A supply of the reprint "An American Doctor Reviews the Wagner-Murray-Dingell Bills" is still available at the headquarters office.-A large number of this reprint has been sent to physicians on request.

If the Wagner-Murray-Dingell Bills became law, what would prevent "Black Market" medicine?-There is considerable talk in opposition to these bills but do the Missouri representatives in Washington know what the people of Missouri want in this case?—Who is going to tell them?

Granting the defeat of S. 1161 and H. R. 2861, what then?-Mere defeat of the bills will not solve the problems upon which they were projected.

The Senate recently voted to guarantee doctors and dentists a specified sum, plus moving expenses to set up practice in localities needing such services. -- Under this legislation, now in the House, these doctors and dentists would receive \$250.00 per month for three months, plus expenses, if they volunteer to move.—Those communities requesting medical practitioners would have to furnish \$100.00, the rest to be donated by the government.

Congress is now recessed for Christmas vacation until January 10, 1944. Most of the Missouri Congressmen will come home. Is not this an ideal opportunity for physicians to talk with their representatives about the Wagner-Murray-Dingell Bills and also insist that their patients do likewise? Have you read Senate 1161? Your Congressman will send you a copy on request.

THE STATE BOARD OF HEALTH

PREMARITAL LAW

In accordance with the premarital law passed by the last legislature, the State Board of Health has prepared certificate and report forms to be used in regard to the blood test required of each and every applicant for marriage license. These blank forms are distributed to the various Recorder of Deeds and other license bureaus throughout the state, and to various approved laboratories where the tests may be made. They are also obtainable by applicants and physicians upon request to the State Board of Health, Jefferson City.

These tests are made free of charge in the State Board of Health laboratories located at Jefferson City, Springfield and Sikeston, and in other public health laboratories in different parts of the state. They also may be made in any local or private laboratory that is approved by the State Board of Health.

To be approved by the State Board of Health, a local or private laboratory must undergo an evaluation check made by the State Board of Health. The procedure in this evaluation project is comparable to that used by the United States Public Health Service in its annual evaluation of state laboratories.

A list of these approved laboratories may be had upon request at the State Board of Health, Jefferson City, A list will be on file in the office of each Recorder of Deeds

throughout the state.

Reports from other state laboratories, or any local or private laboratory in other states that is approved by the State Board of Health of that state, are acceptable for use in obtaining a marriage license in Missouri.

This law becomes effective January 1, 1944. JAMES STEWART, M.D., STATE HEALTH COMMISSIONER.

MISCELLANY

AMERICAN MEDICAL ASSOCIATION COUNCIL ON MEDICAL SERVICE AND PUBLIC RELATIONS

The Council has authorized the publication of the following statement:

Pursuant to carrying out the duties imposed on it by the House of Delegates, the Council has adopted the fol-

lowing general policies:

1. The Council on Medical Service and Public Relations recognizes the desirability of widespread distribution of the benefits of medical science; it encourages evolution in the methods of administering medical care. subject to the basic principles necessary to the maintenance of scientific standards and the quality of the service rendered.

It is not in the public interest that the removal of " economic barriers to medical science should be utilized as a subterfuge to overturn the whole order of medical practice. Removal of economic barriers should be an object in itself.

It is in the public interest that the standards of medical education be constantly raised, that medical research be constantly increased and that graduate and postgraduate medical education be energetically developed. Curative medicine, preventive medicine, public health medicine, research medicine, and medical education, all are indispensable factors in promoting the health, comfort and happiness of the nation.

2. The Council through its executive committee and secretary shall analyze proposed legislation affecting medical service. Its officers are instructed to provide advice to the various state medical organizations as well as to legislative committees concerning the effects of the proposed legislation. It shall likewise be the duty of its officers to offer constructive suggestions to bureaus and legislative committees on the subject of medical service

3. The Council approves the principle of voluntary hospital insurance programs but disapproves the inclusion of medical services in those contracts for the reasons adopted by the House of Delegates at the 1943

4. The Council approves voluntary prepayment medical service under the control of state and county medical societies in accordance with the principles adopted by the House of Delegates in 1938. The medical profession has always been very much opposed to compulsory health insurance because (1) it does not reach the unemployed class, (2) it results in a bureaucratic control of medicine, and interposes a third party between the physician and the patient, (3) it results in mass medicine which is neither art nor science (4) it is inordinately expensive, and (5) regulations, red tape and interference render good medical care impossible. Propaganda to the contrary notwithstanding, organized medicine in general, and the American Medical Association in particular have never opposed group medicine, prepayment or non-prepayment, as such. The American Medical Association and the medical profession as a whole have opposed any scheme which on the face of it renders good medical care impossible. That group medicine has not been opposed as such is evidenced by the fact that there are many groups operating in the United States which have the approval of the medical profession, and members of these groups are and have been officials in the national and state medical organizations. That group medicine is the Utopia for the whole population, how-ever, is not probable. It may be and possibly is the answer for certain communities and certain industrial groups if the medical groups are so organized and op-

erated as to deliver good medical care.

5. The Council believes that many emergency measures now in force should cease following the end of

hostilities.

6. The Council believes that the medical profession should attempt to establish the most cordial relation-

ships possible with allied professions.

7. There is no official affiliation between the American Medical Association and the National Physicians Committee. However, since it is the purpose of the National Physicians Committee to enlighten the public concerning contributions which American medicine has made and is making in behalf of the individual and the nation as a whole, it is the opinion of the Council that the medical profession may well support the activities of the National Physicians Committee and other organizations of like aims.

8. American medicine and this Council owe a responsibility to our colleagues who are making personal sacrifices to answer the call of the armed forces. Therefore, the Council expresses the desire to cooperate with the medical committee on post-war planning in order to assist our colleagues in reestablishing themselves in the practice of medicine, and in the preservation of the American system of medicine.

SULFADIAZINE FOR MENINGITIS

The routine administration of sulfadiazine in all cases of meningococcic infections, which include meningitis, is recommended by Lieutenant Colonel Lewis Webb Hill and Captain Haseltine Smith Lever, Medical Corps, Army of the United States, in their report in The Journal of the American Medical Association for September 4 on an outbreak in an army camp. There were no deaths in 68 consecutive cases. This recommendation is supported by another report in the same issue of The Journal, made by Lieutenant Colonel Worth B. Daniels, Captain Sydney Solomon and First Lieutenant William A. Jaquette, Jr., Medical Corps, Army of the United States.

COUNCILOR DISTRICT AND SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL 1944

(SOCIETIES WHICH HAVE PAID DUES FOR ALL MEMBERS AND DATE PLACED ON HONOR ROLL)

Benton County Medical Society, November 17, 1943.

Chariton County Medical Society, December 1, 1943.

Camden County Medical Society, December 7, 1943.

Webster County Medical Society, December 7, 1943.

Perry County Medical Society, December 11, 1943.

Moniteau County Medical Society, December 15, 1943.

Carter-Shannon County Medical Society, December 15, 1943.

Ste. Genevieve County Medical Society, December 20, 1943.

Scott County Medical Society, December 20, 1943.

ASSOCIATE EDITORS: COUNCILORS OF THE TEN COUNCILOR DISTRICTS

TENTH COUNCILOR DISTRICT

PAUL BALDWIN, KENNETT, COUNCILOR

St. Francois-Iron-Madison-Washington-Reynolds
County Medical Society

The St. Francois-Iron-Madison-Washington-Reynclds County Medical Society met at the Bonne Terre Hospital, Bonne Terre, at 8:00 p. m., November 26.

The following were present: Drs. David E. Smith and A. L. Evans, Bonne Terre; Harry Barron, Fredericktown; Reuben Appleberry, Farmington; H. H. Cline, Flat River; H. C. Gaebe, Desloge, and John W. Hunt, Jr., Leadwood.

After routine business matters were disposed of the Wagner-Murray-Dingell bills were discussed.

JOHN W. HUNT, JR., M.D., Secretary.

HOW TO COUGH AND NOT SPREAD DISEASE

There would be fewer colds and much less tuberculosis, influenza, pneumonia, diphtheria, whooping cough and other diseases spread by saliva if people only would learn to cough and sneeze properly, Lieut. Samuel F. Harby, U.S.N.R., points out in the December issue of Hyggeia, The Health Magazine.

"Whenever you feel a cough or sneeze coming on," he advises, "turn your head away from other people, and cough down at the floor. The thousands of small droplets of saliva which escape inevitably from your mouth as you cough are thus thrown down at the floor, where they have little chance of getting on your associates, and especially into their mouths to cause respiratory infection."

Quoted

from one of more than 400 published papers

"In forward areas, where large numbers of short operations are usually performed, the quick smooth induction of 'Pentothal Sodium' gives it a decided advantage over the inhalation anaesthetics in saving time. This is particularly so in hot weather when ether inductions are usually prolonged and are very wasteful of ether. A further important advantage is the quick recovery which enables the patient to be removed from the theatre without the danger of sudden respiratory obstruction, and later this, as well as the absence of post-operative vomiting, leaves him in much better condition for early evacuation than if he has had ether."

L. G. Morton, Capt., Australian Army Med. Corps

Experiences with "Pentothal Sodium"
in an Australian General Hospital

Australian and New Zealand J. Surgery, 12:119, Oct., 1942

FOR INTRAVENOUS ANESTHESIA

Pentothal Sodium

REG. U. S. PAT, OFF.

Descriptive literature will be sent upon request.

Address inquiries to ABBOTT LABORATORIES North Chicogo, Illinois (Sodium Ethyl-(1-Methyl Butyl)-Thioborbiturate, Abbott)

INDEX TO ADVERTISERS

BOOKS RECEIVED

Aloe, A. S., Company	
Borden Company 7 Brewing Industry Foundation 17	
Camel Cigarettes11Camp, S. H. & Company21Cheplin Laboratories, Inc.25Chicago Medical Society33Ciba Pharmaceutical Products, Inc.19Ciba Pharmaceutical Products, Inc.InsertCoca-Cola Company32Cook County Graduate School of Medicine33	
Denver Chemical Manufacturing Company 14	
Faith Hospital	
General Electric X-Ray Corporation 9 Glenwood Sanatorium 28 Gradwohl School of Laboratory Technique 18 Grandview Sanitarium 22	
Hamilton-Schmidt Surgical Co. 28 Hanger, J. E., Inc. 37 Holland-Rantos Company 10 Hynson, Wescott & Dunning, Inc. 33	
Isle, W. E., Company	
Lederle Laboratories, Inc.6Lilly, Eli and Company16Lov-E Brassiere Company12Luzier's, Inc.29	
M & R Dietetic Laboratories, Inc. 31 Major Clinic Association 5 Mead Johnson & Company 40 Medical Protective Company 18 Milwaukee Sanitarium 1 Miscellaneous Announcements 34 Mosby, C. V., Company 27 Mullen Ambulance Company 26	
National Pathological Laboratory35Neurological Hospital, The28Norbury Sanatorium18	
Ortho Products, Inc	
Parke, Davis & Company4Petrogalar Laboratories, Inc.39Philip Morris & Company8Physicians Casualty Association26Mary E. Pogue School26	
Ralph Sanitarium	
Smith-Dorsey Company37Smith, Kline & French Laboratories20Spencer Corset Company35Stokes Sanitarium34	
Upjohn Company	
Wallace Sanitarium26White Laboratories, Inc.15Winthrop Chemical Company13Worrell, Dorothy34Wyeth, John & Bro.2	
Zemmer Company	

DR. COLWELL'S DAILY LOG FOR PHYSICIANS. A Brief, Simple, Accurate Financial Record for the Physician's desk. Champaign: Colwell Publishing Company, 1944.

THE BIOCHEMISTRY OF MALIGNANT TUMORS. By Kurt Stern, M.D. Formerly Research Associate of University of Vienna, New York, N. Y., and Robert Willheim, M.D. Professor, University of Philippines, Manila. Brooklyn: Reference Press. 1943. Price \$12.00.

REACTION TO INJURY. Pathology for Students of Disease Based on the Functional and Morphological Responses of Tissues to Injurious Agents. By Wiley D. Forbus, M.D., Professor of Pathology, Duke University and Pathologist to the Duke Hospital. 532 illustrations, 20 of which are in color. Baltimore: William and Wilkins Company. 1943. Price \$9.00.

Textbook of Physiology. By William D. Zoethout, Ph.D. Professor of Physiology in The Chicago College of Dental Surgery (Loyola University); and W. W. Tuttle, Ph.D., Professor of Physiology, College of Medicine, State University of Iowa. Eighth Edition. With 308 Text Illustrations and 3 Color Plates. St. Louis: C. V. Mosby Company. 1943. Price \$4.75.

INTERNAL MEDICINE IN GENERAL PRACTICE. By Robert Pratt McCombs, Lieutenant, Medical Corps, United States Naval Reserve; Recently Instructor in Internal Medicine for the Statewide Postgraduate Program of the Tennessee State Medical Association. On leave of absence from the staffs of the Pennsylvania Hospital, the Abington Memorial Hospital and the Jefferson Medical College, Philadelphia. Illustrated. Philadelphia: W. B. Saunders Company. 1943. Price \$7.00.

PERSONAL AND COMMUNITY HEALTH. By C. E. Turner, A.M., Sc.D., Dr.P.H. Professor of Public Health in the Massachusetts Institute of Technology; Formerly Associate Professor of Hygiene in the Tufts College Medical and Dental Schools; Sometime Member of the Administrative Board in the School of Public Health of Harvard University and the Massachusetts Institute of Technology. Seventh Edition. St. Louis: C. V. Mosby Company. 1943. Price \$3.50.

Specialties in Medical Practice. Renewal Pages in the Loose-leaf Specialties in Medical Practice. By Edgar Van Nuys Allen, M.D. Editor, Chief of a Section in the Division of Medicine, The Mayo Clinic, Rochester, Minnesota; Associate Professor of Medicine, The Mayo Foundation for Medical Education and Research, Graduate School, University of Minnesota. With a Foreword by Donald C. Balfour, M.D. F.A.C.S., F.R.C.S. (England), F.R.A.C.S., Consultant in Surgery, The Mayo Clinic; Professor of Surgery and Director, The Mayo Foundation for Medical Education and Research, Graduate School, University of Minnesota. Volume 1. New York: Thomas Nelson and Sons. 1943.

Prescribe & Dispense Sullings

Aucts are laboratory



THE JOURNAL

OF THE

Missouri State Medical Association

The Official Organ of the State Association and Affiliated County Societies
Issued Monthly under direction of the Publication Committee

COPYRIGHTED, 1944, BY MISSOURI STATE MEDICAL ASSOCIATION. ALL RIGHTS RESERVED.

Volume 41

FEBRUARY, 1944

Number 2

RALPH L. THOMPSON, M.D., Editor RAYMOND McINTYRE, Managing Editor HELEN PENN, Assistant Editor 623 Missouri Bldg., St. Louis, Mo. Telephone, Newstead 0404-05

Publication Committee

RALPH L. THOMPSON, M.D., Chairman M. H. SHELBY, M.D. R. C. HAYNES, M.D. VINCENT T. WILLIAMS, M.D.

SULFONAMIDES

MODE OF ELIMINATION

LT. HENRY L. BARNETT, M.C.

ST. LOUIS

From a practical viewpoint, the kidney complications of the sulfonamide drugs appear to be the most important problem of sulfonamide chemotherapy at the present time. Although there are some toxic effects which are more frequent and others which may be more serious, because of both the frequency and seriousness of the renal complications they constitute by far the most important of the toxic effects. From the standpoint of general clinical use of these drugs at the present time, it appears that although both are to be desired, if one had to choose between a more effective drug and one only as effective as the now available drugs but free from the kidney complications, the latter would be preferable. The cause and exact nature of the kidney complications of the drugs are not as yet entirely clear and, consequently, the means by which they can be avoided entirely are not at hand. What is known, however, about the mode of elimination of the sulfonamide drugs, as it influences the kidney complications, and what precautions should be taken in light of that knowledge?

In the first place, it can be stated with assurance that direct renal damage from sulfanilamide does not occur. For this reason, in treatment of hemolytic streptococcus infections complicated by acute hemorrhagic nephritis, sulfanilamide may be the drug of choice although it is a less effective drug against the infection itself.

When one turns to more effective drugs, however, including sulfapyridine, sulfathiazole and sulfadiazine, the kidney complications assume their important role. It has been shown by Rake, Van Dyke and Corwin¹ that when sulfathiazole was given as 2 per cent of the diet to mice, 77 per cent were killed during a four week period, the deaths being due chiefly to lesions in the genito-urinary tract. The changes

were of two types: (1) changes due to the mechanical effect of concretions of crystals and, (2) changes due apparently to primary damage to the glomeruli and toxic necrosis of the cells of the convoluted tubules. Each of these types of changes has been observed in patients dving from kidney complications of the sulfonamide drugs. The cause of these two types of changes is not entirely clear. Figure 1 shows that in the absence of demonstrable kidney damage, sulfapyridine has no detrimental effect on renal function. Even the simple type of kidney damage due to mechanical obstruction by concretions in the urinary tract does not appear to be explained entirely on the basis of plasma levels, urinary flow and the subsequent concentration of the drugs in the urine. Dowling and Lepper2, in a recent review of the toxic reactions following therapy with the various sulfonamide drugs, found renal calculi less frequently in patients treated with sulfadiazine or sulfapyridine than in those treated with sulfathiazole, and they also found that the frequency of occurrence of renal calculi varied in direct proportion to the maximum level of free sulfonamide in the patient's blood. Although in general this must undoubtedly be true, our experience points to the conclusion that other factors must be involved. Table 1 shows illustrative cases with each of the three drugs in which hematuria developed on the usual dosage of the drugs and at a time when the plasma levels were not unusually high. In contrast to this, over a hundred cases of meningitis have been treated in many of which blood levels of from 30 to 50 mg, per cent were maintained and, yet, in many of which no hematuria occurred. Experiences such as this have led to the belief that factors other than blood levels and urinary volume must be concerned with the occurrence even of the obstructive type of renal complications. In regard to the type of kidney complication associated with tissue necrosis, still less is known as to why it occurs in some cases and not in others although, from certain experimental data, it appears that it may be related to liver function.

With these points in mind, I will discuss the prevention, recognition and treatment of the kidney complications which occur clinically.

From the Department of Pediatrics, Washington University School of Medicine and the St. Louis Children's Hospital.

Presented at the 86th Annual Session of the Missouri State Medical Association, St. Louis, April 18, 19, 20, 1943.

Table 1. Illustrative Cases

Patient	Drug	Dosage	Blood Conc. mg. per cent	Remarks
J. L.	Sulfapyridine	0.2 gm./kg. 1 day 0.1 gm./kg. 4 days	Free 3.2 mg. per cent Total 16.3 mg. per cent	Hematuria with oliguria. Recovered with fluid ad- ministration.
J. A. P.	Sulfadiazine	0.1 gm./kg. initial dose 0.2 gm./kg. $1\frac{1}{2}$ days	Free 13.0 mg. per cent	Hematuria only.
B. R.	Sulfathiazole	0.1 gm./kg. initial dose 0.2 gm./kg. 6 days	Free 7.8 mg. per cent	Hematuria only.

Of the two types of kidney damage described, the one due to mechanical blockage is the one toward which most of the preventive and therapeutic measures are directed. These measures are all directed toward attempts to prevent precipitation of the drugs in the urine, by lower plasma levels, increased urine volume or increased solubility of the drugs in the urine. Practically, the most important measures follow.

- 1. Assurance of High Urinary Output.—In general, and particularly in pediatrics, the emphasis must be put on urinary output rather than fluid intake because in a severely dehydrated infant relatively enormous quantities of fluid will be required to replace fluid loss without establishing any real diuresis.
- 2. Avoidance of Unnecessarily High Blood Concentrations of Drugs.—The optimal concentrations of the sulfonamide drugs in the body fluids for the treatment of various infections is not known, but it is the impression that in very severe infections high concentrations are indicated. In such infections, more emphasis must be placed on the other measures directed toward the prevention of kidney complications. Blood levels above those expected on a given dosage, however, can and should be avoided by the following means:
- (a) Determine whether or not the patient has been receiving sulfonamide medication either from a reliable history or from a blood determination.
- (b) Evaluate the state of the patient's renal function by whatever methods seem indicated.
- (c) Avoid, when possible, repeated intravenous administration of sodium salts of the sulfonamide drugs and change as soon as possible to oral administration.
- (d) Do frequent determinations of the concentration of drug in the blood.
- 3. Use of Alkali.—Although crystalluria has been shown to be decreased by the assurance of an alkaline urine, there is some disagreement as to the influence of the pH of the urine on the incidence of acutal renal damage. Recently, Fox, Jensen and Mudge³ have reemphasized the importance of maintaining an alkaline urine, particularly during the administration of sulfathiazole and sulfadiazine whose solubility is enhanced more markedly by alkali than that of sulfapyridine. They also emphasize that large amounts of alkali must be given to maintain the urinary pH at 7.5 which is necessary

for maximum effect. Alkali is not given routinely with the sulfonamides for this purpose, although in any case in which very high blood concentrations are thought necessary, or if the urinary output cannot be kept up for some reason, alkalinization of the urine should be done.

TREATMENT OF RENAL COMPLICATIONS

Foremost under this heading should be the early recognition of signs of renal complications of the sulfonamide drugs. Frequent urinalysis and measurement and recording of the urinary output are probably the most important factors in detecting early the occurrence of renal complications. In some cases, as in the treatment of meningitis, it may be deemed necessary to continue sulfonamide therapy even when red cells have appeared in the urine. In such cases, all of the measures mentioned concerning prevention must be intensified. I feel that because of the severity of the infection the drug must be continued even in the presence of hematuria, in some instances because of the danger in stopping the drug too early in cases of severe infections. If, however, progressive oliguria occurs in such cases, or the appearance of red blood cells in the urine in ordinary cases, the drug should be stopped immediately. Fluids containing alkali should be administered in large quantities. Almost all of the recent reports have emphasized the importance of early ureteral catheterization with pelvic irrigation if oliguria progresses. If these measures fail to relieve the oliguria, either intratubular obstruction or actual tissue damage is probably present, in which case an intense diuretic regimen should be tried. Additional fluids and hypertonic solutions of dextrose or sorbitol should be administered.

SUMMARY

In closing these remarks, I should like to reemphasize the importance of the kidney complications of the sulfonamide drugs at the present time. I do this to encourage careful, intelligent use of the drugs rather than in any sense to warn against their use since it is even more evident now than earlier in the history of sulfonamide chemotherapy⁴ that greater harm comes from withholding these drugs when they are indicated or employing inadequate dosage because of fear of the toxic effects than from the toxic effects themselves.

St. Louis Children's Hospital.

RIBLIOGRAPHY

1. Rake, G.; Van Dyke, H. B., and Corwin, W. C.; Am. J. M.

2. Dowling, H. F., and Lepper, M. H.: J.A.M.A. 121:1190 (Apr. 10) 1943.
3. Fox, C. L.; Jensen, O. J., and Mudge, G. H.: J.A.M.A. 121: 1147 (Apr. 3) 1943.
4. Hartmann, A. F.; Barnett, H. L.; Perley, A. M., and Ruhoff, M. B.: J. Missouri M. A. 112:518, 1940.

SULFONAMIDES

USE IN VENEREAL DISEASE

W. S. SEWELL, M.D. SPRINGFIELD, MO.

Progress has banished the old feeling of helplessness and has placed in the physician's hands chemotherapeutic agents that even under the poorest clinical conditions quickly cure a large majority of gonococcal infections.

One should regard every infectious person as his immediate responsibility. Also, the physician should try to find the contacts and see that they are treated.

It is agreed universally that sulfathiazole is the sulfonamide of choice in treating gonorrhea. So far as I know, there is nothing new in the way of giving the drug. It does one of three things: (1) it produces a cure promptly; (2) it produces an apparent cure in patients who become asymptomatic carriers; (3) it fails to produce any effect whatever.

My method of treatment is not new and is not original. I spend some time talking to the patient and explaining to him that he has an infectious disease and should not take any chance of giving it to any one else. I try to find out his contacts and if possible for him to do so, have him get them to a physician for treatment.

I suggest that he refrain from sexual intercourse, alcoholic drinks, excessive fatigue and bad colds. I impress on him that he should get plenty of rest and sleep. I do not limit his diet but suggest that he eat lots of good wholesome food.

I inquire if he has taken sulfathiazole. If he has taken the drug, it is well to instruct him as to symptoms of sensitivity and to discontinue the drug immediately if they appear.

I give the patient a prescription for forty tablets $(7\frac{1}{2} \text{ grains})$ of sulfathiazole. He is instructed to take two tablets in the morning, two at noon time, two in the evening and two before retiring at night. That means that he should not forget one dose and hope to make it up the next time. By all means, tablets should be taken four times a day as instructed.

I ask the patient if possible to report to me every day for the first five days. At the end of five days he has taken 20 gm. of sulfathiazole. The drug is then discontinued. In two or three days, the patient reports to the office at which time a smear is made; if negative, a culture is made. If both are negative, the patient reports again in a week for

Presented at the 86th Annual Session of the Missouri State Medical Association, St. Louis, April 18, 19, 20, 1943.

another smear and culture. If they are negative, he is instructed to return at weekly intervals for another three weeks. If smears and cultures are negative during this time, I consider the patient cured. I cannot get away from the old idea of three months and I suggest that he use a condom for at least three months and if any irritation or urethral discharge is noted to return immediately for reexamination.

There is the patient in whom the drug apparently does some good but does not cure. He has a positive smear or culture at the termination of the five day treatment. He is put immediately on local treatment. After approximately a week's treatment, he is given a prescription for forty tablets (71/2 grains) sulfathiazole to take as he did the first time.

It may seem strange but I have had this happen: I have had patients whom apparently the sulfathiazole did not benefit at all. After waiting a week and giving them another course of sulfathiazole, their symptoms would clear up as fast as in patients with the first course. However, I am somewhat suspicious of that type of patient. He may be a carrier and should be watched very closely for the next several weeks.

Then there is the patient who has just as much discharge at the end of five days as he had at the first examination. Sulfathiazole has not seemed to do him any good. Usually in this type, the second course of the drug does not show any signs of doing any good. I start this patient on local treatment and continue until he is well.

If sulfathiazole does not cure a patient after he has had at least 40 gms., I do not think there is any necessity of giving any more of this drug or any of the other sulfonamides.

There should still be caution about giving a patient forty tablets of sulfathiazole and telling him that it is a sure cure and that he need not worry. It should be repeated in a week if necessary. At the present time, I am curing approximately eight out of ten patients with sulfathiazole. The physician should be careful and watch his patients so that he may be sure to weed out the ones that sulfathiazole does not cure.

I do not see very many cases of chancroid any more. I have had only two so far this year. Sulfanilamide is the drug of choice in treating the chancroid. One of the most important things is to make a diagnosis. After one has made a diagnosis of chancroid, it is my opinion that it is well to have a Kahn or Kline test made every month for a period of from six months to a year.

In treating the chancroid, I wash out the ulceration with a normal saline solution and then dry it well. I then dust powdered sulfanilamide on the ulceration. I do this once a day. I also give the patient 3 grams of sulfanilamide in broken doses over a period of five days. At the end of five days the dosage is reduced to 2 grams given for nine days. That gives the patient two weeks treatment.

In a great percentage of chancroid cases, this will effect a cure. If it does not have any effect on the ulceration, one had better check the diagnosis. If bubo is a complication, the abscess should be opened with a reasonably small incision and the pus drained out and the wound packed with sulfanilamide powder. This works nicely in most cases.

554 Medical Arts Building.

SULFONAMIDES

USE OF SULFONAMIDES IN THE ARMY

LT. COLONEL M. G. FLANNERY, M.C. JEFFERSON BARRACKS, MO.

Probably the greatest single change in medical and surgical treatment between this war and the last is the addition of sulfonamide therapy to the armamentarium. The resultant changes surgically are fewer than in medicine but, nevertheless, remarkable.

Surgical conditions in which the most experience has been had with sulfonamides are:

- 1. Burns.
- 2. Ruptured appendices.
- 3. Pilonidal sinuses.
- 4. Gonorrhea.
- 5. Extensive lacerations and compound fractures. The drug of choice in these conditions has been: For burns, sulfadiazine orally.

For appendicitis, sulfadiazine or sulfathiazole, intravenously and orally; sulfanilamide locally.

For pilonidal sinus, sulfanilamide locally.

For gonorrhea, sulfathiazole.

For lacerations and fractures, sulfanilamide locally.

Volumes have been written and are being written on the sulfonamides. Much statistical data is being compiled and evaluated. Rather than give statistics which at the present time are incomplete and subject to change without notice, I would rather tell of some of the clinical conclusions and experiences had with the sulfonamides. I shall confine it to the five surgical conditions which are the commonest.

Burns.—At first sulfadiazine spray was tried. Experiences were: (1) A crust, yes, but collections of infected serum appeared beneath the crust. (2) Rapid absorption of the drug from the burned region produced blood levels over which the surgeon had no control; that is, if one is going to cover the entire burned surface with a sulfadiazine crust, if that region be very large, a very high blood level will result. Since this particular patient is one who, because of the type of trauma, is dehydrated severely, and since renal calculus formation is in the main directly proportional to the severity of the dehydration and the height of the sulfonamide blood level, it was felt that lack of control of the blood level of sulfonamide made this a dangerous procedure.

Its use intravenously and orally in burns has been very satisfactory, starting slowly enough to be sure of fluid balance before obtaining a maximum blood level of about 10 mg. per 100 cc. of blood.

Appendicitis.—It will be very interesting when this Martian World's Fair is over to compare the

Presented at the 86th Annual Session of the Missouri State Medical Association, St. Louis, April 18, 19, 20, 1943.

mortality of ruptured appendices of the wars one and two. Death from generalized peritonitis due to a ruptured appendix was not uncommon in the first world war. Today it is as rare as death from red measles. The exact rate in the Air Corps for the last three years is at the present time being computed. Of my personal experience at two fields with a combined strength of 65,000 and a combined hospital bed capacity of 3,350, covering ten months' time, the percentage of gangrenous appendices was 7.2 per cent, of ruptured appendices was 4.1 per cent and the mortality was 0.

It has been concluded that the sulfonamide in the blood stream is much more effective than that locally, especially in the presence of pus and fibrinous exudate. A rather decided change in technic also has occurred in that when previously one encountered a ruptured appendix, the accepted procedure was to insert sufficient drainage and retire. Now, if the appendix can be removed without disturbing the medial abdominal content, one proceeds, thus stopping the leak. Following this, from 4 to 6 grams of sulfanilamide microcrystals are sprinkled into the peritoneal cavity, a gram or so between the fascial layers, and drain or not as is the surgeon's preference. Following this, the patient is started on sodium sulfadiazine intravenously.

A further word on the drug of choice: For local instillation, experience has been that sulfanilamide powder cakes and interferes with healing. The course crystals act as foreign bodies—the microcrystals are ideal. By microcrystals, I mean those which will pass through a 40 to 60 mesh. By mouth, the drug of choice is sulfadiazine; by vein, sodium sulfadiazine, 4 grams given in 300 cc.

Pilonidal Sinus.—This is the Army headache along with everyone else's. Conclusions are definitely not clear on this subject. For a time, by excising the tract as carefully identified by probe, getting complete hemostasis and the use of sulfonamide crystals, eight out of ten stayed closed. Then five in a row opened and had to be drained. So the efficacy of sulfonamide in this operation is definitely in doubt.

Gonorrhea.—Here again one comes to the miracles of sulfonamide therapy. One heretofore great impediment to the Army has been reduced from a three to six week impediment to a five day affair. I do not mean to imply that they all get well in five days, but the majority does. Following the use of sulfathiazole which has been the drug of choice, many will have persistent discharge of sterile mucus which probably is due either to the inflammation caused by the disease itself or the irritation of the drug. By repeated smearing these have been found not to be recurrences.

Very frequently after the first 4 grams of sulfathiazole the smears become negative. This has led to some trickery by the prostitutes in localities in which the health department does routine smears. They are notified to appear for examination so they take 4 gms. of sulfathiazole the day before and appear with a negative smear. This trickery

is difficult to catch up with unless the people observed are hospitalized, which of course is impracticable. However, in New York they were able by use of the vagrancy law to study 375 prostitutes in the hospital for a ten to thirty day period. Their course of treatment consisted of ten days of sulfonamide therapy followed by smears and cultures, at least one of which was taken after the menstrual period. With one course of treatment they had the astounding rate of cure of 95 per cent and with two courses the miraculous rate of 98 per cent. The interesting sidelight is that the minimum number of contacts admitted by any prostitute was twenty per day. This illustrates the fallacy of ambulatory treatment since the prostitutes livelihood depends on contacts. Multiply 375 by 20 by 20 days per month which is the average work month free from illness and catamenia, and one has the exposure numbers for this one small group of ladies of the street of chance.

The method of treatment is now ambulatory and with the men on full duty status. Four gms. of sulfathiazole in doses of 1 gm. four times daily are given under supervision for five days. Then two days of rest are followed by observation. If still positive, the patients are then hospitalized and another five days of treatment instituted. If still positive, local treatment is then instituted using ½ per cen protargal, 1-8000 KMnO₄ or neutral acriflavin. If at the end of twenty days total elapsed time there is not a cure, they are sent to a general hospital for treatment combined with fever therapy. The percentage of cure is 80 per cent with the first five-day treatment.

Lacerations of Compound Fractures.—The drug of choice is sulfadiazine by mouth or intravenously and sulfanilamide crystals locally. It is common practice for corps men to give the initial dose of sulfonamide or to put on a sulfanilamide dressing. On arrival at the base, the wounded man is taken to surgery where a careful debridement is done, sulfanilamide crystals put into the wound and sulfonamides started by mouth or parenteral infusion. The Army's experience already has demonstrated adequately that sulfanilamides locally will never replace careful debridement. Crushed devitalized tissue must be excised. The center portion of a devitalized block of muscle to which the blood supply has been disrupted, is an ideal culture media and is inaccessible to the sulfonamide either locally or systemically. This is the same condition with which one is faced in attempting to treat infected thrombi with sulfonamides. Where blood or tissue fluids cannot go, the bacteriostatic effect of sulfonamides is of no use. The other condition in which they are of no avail is in the presence of the inactivating substance para-amino benzoic acid which is contained in procaine and elaborated pus.

Experience with sulfonamides in the Army is just beginning. New keys are being added to the benzene ring each month. Who knows what heretofore closed doors they may unlock!

Station Hospital.

USE OF SULFONAMIDES IN THE ARMY

MAJOR ARIE C. VAN RAVENSWAAY, M.C.

JEFFERSON BARRACKS, MO.

Colonel Flannery has discussed the use of the sulfonamides on the surgical service of a station hospital such as the one at Jefferson Barracks, and I would like to comment on their use on the medical service. Since time is rather limited, I will confine my remarks to the two most important conditions which calls for treatment at the present time. Probably the most important of the two is epidemic meningococcic meningitis. Before specific treatment was available for this condition the mortality ranged from 70 to 100 per cent. After the specific antiserum and antitoxins came into use the mortality dropped to between 20 and 50 per cent. It was generally considered that if the mortality in a large series of cases was below 30 per cent the treatment was guite effective. At the present time, with the use of the sulfonamides with or without antisera and other supportive measures, the mortality in a large series of cases may be expected to be from 2 to 5 per cent.

Three types of cases of meningococcus infection are now being seen at Jefferson Barracks. One type is represented by the patient who develops fever, a tendency to either stupor or delirium and with a positive spinal fluid. If treated soon after onset a minimal mortality can be expected. The second type is that in which menigococcemia is the predominating feature of the disease. In this type the spinal fluid is usually negative on first examination and the characteristic pathognomonic sign is the development of rather typical hemmorrhagic petechiae. In that connection it might be interesting to mention that several cases have been seen in which the appearance of the characteristic petechiae is preceded for a period of several hours by the appearance of a macular erythematous rash resembling the rose spots which occur in typhoid fever. These spots disappear under pressure and are not hemorrhagic. In this group of cases the mortality is very low. Most of the fatalities which have occurred in this series have been in the third type of case. In that type the chief presenting sign is that of extreme circulatory collapse. Two cases which occurred at Jefferson Barracks demonstrated this feature quite vividly.

In one case the soldier had been quite well during the morning and was performing all of his duties. He was off duty during the afternoon, returned to the barracks and apparently decided to take a nap. A few hours later his bunk mate noticed that he was cyanotic. He could not be roused and died before he could be taken to the hospital. The second case was rather dramatic. The soldier was taken to the hospital for treatment for a cold which he had had for twenty-four hours. Shortly

Presented at the 86th Annual Session of the Missouri State Medical Association, St. Louis, April 18, 19, 20, 1943.

after admission to the hospital he became quite cvanotic, his systolic pressure was found to be 40 millimeters of mercury; he developed marked edema of the left arm and right leg and gradually became pulseless. He had no petechiae, no meningeal symptoms and was well orientated until a few minutes before his death which came in six hours. In this case the diagnosis was confirmed at autopsy trom pus taken from a pyoarthrosis of the knee joint. Very early meningitis was found. Fortunately, cases of this type are extremely rare. It is unlikely that any treatment available at the present time will prove successful in the bulk of these fulminating cases.

The combined mortality for this hospital in the three types of cases of meningococcus infection described, at the the present time, is approximately 3.2 per cent.

The following is a résumé of the treatment used in meningococcus infections at the Station Hospital at Jefferson Barracks. Early in this series of cases it was noted that absorption of the sulfa drugs from the gastrointestinal tract can not be depended upon in those patients who are quite ill, particularly if gastrointestinal disturbances are present. Therefore, it is believed that unless the onset is extremely mild the initial doses of the sulfonamide should be given parenterally. The drug of choice at present is sodium sulfadiazine for parenteral use and sulfadiazine for oral administration. The initial dose of the former is 5 grams dissolved in 250 cc. of distilled water and given intravenously. This dose is repeated in four hours. Then the patient is given 2 grams every four hours by mouth until the temperature has been normal for forty-eight hours. At this point the dose is reduced to 1 gram every four hours for an additional forty-eight hours. If after the initial two doses are given the patient's condition is such that further parenteral use of the drug is indicated, it is continued with doses of 2.5 grams of sodium sulfadiazine intravenously every four hours. There is no hesitation in using it and, in cases of staphylococcus meningitis and septicemia, parenteral treatment has been continued for three and four days without untoward reaction.

In connection with the use of sulfadiazine careful attention is given to the maintenance of proper fluid balance and output. Dr. Sewell just stated that the renal output is the important factor in preventing renal complications from sulfadiazine administration and that after the first dose of sodium sulfadiazine enough fluid is given intravenously to insure adequate output. In case signs of collapse are present, as indicated by cyanosis and falling blood pressure, large doses of plasma are given.

The second major problem in which the use of the sulfonamides is important is in the treatment of pneumonia. The chief types of pneumonia that are being seen at Jefferson Barracks at the present time are pneumococcal lobar pneumonia and primary atypical pneumonia, the etiology of the latter being still unknown. Occasional cases of staphylococcus pneumonia, or that due to the streptococcus and B. mucosus capsulatus, have also been seen. In quite a large series of cases the mortality for the entire group has been 0.3 per cent. The majority of the deaths has been due to staphylococcus pneumonia. When penicillin becomes available it is hoped that it will provide the solution for the treatment of severe acute pulmonary staphylococcal infections.

Patients with pneumococcal pneumonia and primary atypical pneumonia receive a sulfonamide. Again, the drug of choice is sulfadiazine, with sulfathiazole as the second choice. It is felt that in the early stage of the disease it is at times extremely difficult to differentiate between pneumonia of pneumococcal origin and pneumonia due to nonbacterial causes. The drug is given for three days and if an adequate response is not obtained at the end of that time it is discontinued. In view of the low toxicity of sulfadiazine it is felt that a therapeutic trial of the drug is a justifiable procedure. Sputum typing is done in all cases and, if a type specific pneumococcus is found, the specific antisera is used if a satisfactory therapeutic response is not obtained from the sulfonamide.

Station Hospital.

Prepared under the direction of Colonel James R. McDowell,

Prepared under the direction of Colonel James R. McDowell, Commanding Officer, Station Hospital, and Post Surgeon, Jefferson Barracks, Mo.

The meningitis program is under the direction of Major Charles E. Abbott and Captain Charles W. Cory. A complete report on this subject is now in preparation by them.

The pneumonia program is under the direction of Captain Edward P. Reh and Captain George C. Erickson who are at present proparing a detailed report on this subject.

present preparing a detailed report on this subject.

DIAGNOSTIC FEATURES OF THE FIRST PAIN OF ACUTE APPENDICITIS

E. L. KEYES, M.D.

ST. LOUIS

Lives are saved when appendicitis is diagnosed early and accurately. The early diagnosis of acute appendicitis is not easy and to determine the meaning of a stomach ache is often difficult. Sometimes a physician sits up all night with a patient before being able to reach the correct conclusion. When a physician himself is seized with a stomach ache and fails to suspect it is due to acute appendicitis, as I experienced two years ago, it makes one wonder whether the classical description of the disease is sufficiently complete.

The attack gave me a clearer understanding of the pain of the disease than I previously had possessed, and enabled me to solve correctly a number of obscure problems in differential diagnosis which previously I feel I might have missed. Also I observed greater accuracy in diagnosis in those medical students who had had the disease than those who never had had it. When the first pain was described in detail to the house officers of the general surgical Unit I of the St. Louis City Hospital, a definite increase in diagnostic accuracy was ob-

From the Department of Surgery, Washington University Medical School, and from the St. Louis City Hospital.

served to follow as checked in the weekly diagnostic clinic.

This paper is limited to a description of the first pain of appendicitis, the way it feels to the patient. It will therefore include only the first twelve hours or so of acute appendicitis. After the pain has ended by localizing in the right lower quadrant of the abdomen the description will close, for, after that time, the classical description seems to be clear and generally understood. For the same reason, appendicitis which begins with pain localized immediately in the right lower quadrant is not described.

ONSET

The onset of the first pain of acute appendicitis is gradual. This is characteristic. Few patients can recall the exact time at which they first felt a stomach ache. For example, one patient says he first felt pain a few hours after supper. Another remembers being awakened by a belly ache soon after midnight.

DURATION

The duration of the first pain is usually less than twelve hours, sometimes as little as two or three hours, sometimes as much as twenty-four.

CHARACTER

The pain is more truly an ache. It begins gradually, hardly noticed at first, and increases slowly. It is sickening, nauseating. It gripes like gas pains or menstrual cramps and rises and falls in waves. It smoulders like fire somewhere in the belly. It tugs and pulls and may cause low back ache.

It feels like gas stoppage. It feels like gas or something is locked somewhere in the bowels. The power to push it along is gone. The patient thinks he would feel better if it would move; would improve if gas would pass out the rectum or the pain might cease if the bowels moved. This feeling, called gas stoppage, is considered to be the most important feature of the pain. Specific questions have been devised to elicit it. "Do you feel as if gas had stopped up inside you?" "Do you feel as if passing the gas would relieve you?" Most patients with acute appendicitis answer "Yes" to these two questions, even though a few retain the power to pass gas or even to defecate during the first pain.

As the pain progresses, it makes the patient sit or lie down and stop work. It makes the thought of food or drink repugnant and the smell of cooking nauseating. Many patients vomit, some belch. Some groan and rock to and fro; some feel faint. Even though still able to walk they prefer to lie quiet and to sometimes double up their knees.

LOCATION

Exactly where the pain is in the abdomen the patient cannot determine. His hand sweeps the belly, or indicates the general region of the epigastrium or umbilicus or lower abdomen.

RELIEF OF PAIN

Many patients seek laxatives or enemas for relief because of the feeling of gas stoppage. Some try paregoric or other drugs to ease peristalsis. Very few consider asking for a narcotic for the pain is not severe enough for that. Some try alkali powders or antidotes for nausea or vomiting. An ice bag is often used. Some patients loosen their belts or clothing.

AGGRAVATION OF PAIN

It is interesting that many patients connect the pain with something eaten at the last meal, something they think was tainted, perhaps pork or sea food. Some blame a cold settled in the stomach. The pain is aggravated by moving, walking or by the jog of an automobile.

ACCOMPANYING SYMPTOMS

The order of events is important. The pain always comes first, then the nausea or vomiting. If this order is reversed, the condition is not appendicitis. Constipation is common. Usually the bowels have failed to move during the last twenty-four hours. Sometimes, however, the bowels move once, twice or more often during that period. Stools may be loose or formed. Low back ache occurs occasionally, a headache sometimes, rarely a chill or urinary disturbances. The degree of prostration is generally not severe. Most patients feel they will be back working the next day.

LOCALIZATION OF THE PAIN

When the pain localizes in the right lower quadrant of the abdomen, it loses the features described and hence is no longer referred to as the first pain. When it localizes, it localizes at a definite time. The pain of localization is steady and constant like a boil. It does not exhibit the gas stoppage feature. It is situated definitely and the patient usually can put his finger tips on it and say, "It's right there."

SIGNS ACCOMPANYING THE FIRST PAIN

The patient lies quietly in bed. He is cooperative. The mind is clear. Most patients look somewhat sick. The face is dry and rarely drawn with pain. Signs of dehydration are absent or just beginning and shock is absent. The tongue may be coated.

The temperature and pulse may be normal or they may be elevated. The temperature usually runs from 99.5 to 100.8 F. It rarely exceeds 102.5 F. The pulse rate is usually from 80 to 90 to the minute, rarely over 100.

The abdomen appears flat or a little distended. There is usually some generalized tenderness but no spasm or rigidity. Tenderness at McBurney's point sometimes does not appear until the pain has become localized in the right lower quadrant of the abdomen. This is also true of tenderness by rectum.

The leukocyte count rarely exceeds 18,000 cells per cubic millimeter of blood. The urinalysis is

usually normal. Acetone, diacetic acid and occasional erythrocytes or leukocytes are encountered at times.

DIFFERENTIAL DIAGNOSIS

1. ACUTE SALPINGO OOPHORITIS

A history of exposure, with dysuria or frequency, vaginal discharge and menstrual irregularities previous to onset, points to salpingo oophoritis rather than to acute appendicitis. The onset and the rate of increase of pain, however, are similar in the two diseases, although sometimes more rapid in salpingitis. In intensity, the pain of salpingitis sometimes greatly exceeds that of appendicitis, but sometimes it is less. In character, the pain of salpingitis is more constant and less rhythmic than the pain of appendicitis. The woman knows it is a severe stabbing pain and that it is in her pelvis. It is lower in location than is the pain of appendicitis. Some women with salpingitis writhe in agony and cannot walk.

A significant characteristic of the pain is that, in salpingitis, it lacks the gas stoppage feature of the pain of acute appendicitis.

2. RUPTURED ECTOPIC GESTATION

The differential diagnosis is rarely difficult. The onset is sudden and the woman knows just what time it started. She says, for example, that about 4 o'clock in the afternoon she felt a sudden sharp pain in her side the moment her foot hit the ground when stepping off a trolley car. The pain is definite and stabbing. It is more severe, more rapidly progressive, much more shocking than that of acute appendicitis. It also fails to show the gas stoppage feature. It is prostrating. There are signs of internal bleeding. There is a previous history of a little spotting, and, with rare exceptions, a childless or a one child marriage.

3. ACUTE INTESTINAL OBSTRUCTION

The onset and first pain are often indistinguishable from the onset and first pain of acute appendicitis except that the onset may be more sudden, the pain more rapidly fulminating. The periodic feature of the pain is pronounced. It is generally severe and crampy for thirty seconds, then remits not quite entirely for three or four minutes. It is poorly localized. Like appendicitis, it shows the gas stoppage feature. Nausea and vomiting are generally severe and early, except in the aged; they may be mild with partial intestinal obstruction, however.

It was interesting that the pain in six patients with strangulated inguinal or femoral herniae was found indistinguishable in any way at first from the pain of appendicitis. The pain differed only in its termination and it localized over the hernial sac instead of localizing in the right lower quadrant of the abdomen. Operation revealed complete obstruction due to strangulation of the ileum, either with or without gangrene.

Obstruction due to fecal impaction gave pain similar to that of appendicitis but milder and without the gas stoppage feature in three patients recently seen. Two were aged and debilitated and one was a girl of 11 with acute meningitis.

Constipation alone also may suggest acute appendicitis but lacks the gas stoppage feature.

4. RENAL AND URETERAL DISEASE

The onset is sudden. A patient says, for instance, that at ten minutes past 11 in the morning while at the office he suddenly felt a sharp pain in the right side. The pain is usually severe, often requiring a narcotic for relief. It is knife-like at times, often colicky. It lacks the gas stoppage feature. The termination may be as sudden as the onset. The radiation is chiefly to the loin, groin, genitalia and adductor aspect of the thigh. Dysuria, frequency, pyuria and hematuria are common. The prostration may or may not be severe. Chills, headache, nausea and vomiting often accompany it. In cystitis the pain is apt to lie chiefly over the bladder; frequency and pyuria suggest cystitis.

5. PERFORATED PEPTIC ULCER

The onset is sudden and overwhelming. A patient says, for example, "I felt some pain in the stomach late yesterday afternoon, but at 6:45 something tore loose in there and really hit me." Pain prior to perforation is ulcer pain. After perforation it is intense, acute, stabbing, terrific at times. The patient cannot walk, rarely can even stand. He wants only to get rid of the pain. He may drink or eat to relieve it and is apt to ask for a narcotic. He may vomit. The pain is likely to radiate to the back and shoulders, to be made worse by each inspiration and by moving. It fails to show the gas stoppage feature of acute appendicitis. Signs of shock are common.

6. CHRONIC PEPTIC ULCER

Ulcer pain usually begins gradually either just before or an hour or two after eating. It is characteristically burning and has a belchy feel because belching and alkalies relieve it. It is indefinite, but lacks the gas stoppage feature of appendicitis pain. It is better localized than the pain of appendicitis and usually is high in the epigastrium. The debility is not severe and a physician rarely is called. The pain does not localize in the right lower quadrant of the abdomen although it may be referred there.

7. GALL STONE COLIC AND CHOLECYSTITIS

The onset is sudden with gall stone colic, gradual with cholecystitis. The attacks are apt to begin early in the morning. With gall stone colic the pain is characteristically knife-like, localized over the gallbladder region, radiating to the angle of the right scapula. With cholecystitis the pain at first may be generalized in the abdomen, a severe indefinite ache like appendicitis but unlike it in lacking the gas stoppage feature. Many patients have a dyspeptic gaseous feeling, it is true; but they

feel that belching or vomiting will relieve it and not the passing of gas through the rectum, a power they still retain. The pain may be severe enough to warrant a narcotic and the physician is apt to be called early in the attack. The pain, after a time, localizes over the gallbladder, although in thin women it may localize in the right lower quadrant of the abdomen. A slight jaundice may develop slowly, a sign never seen early in acute appendicitis.

8. PANCREATITIS

The symptoms closely resemble those of acute cholecystitis except that the pain at times tends to concentrate in the left upper quadrant of the abdomen. The onset is sudden. It occurs after eating rather than at night. It is severe and debilitating, often requiring narcosis for its relief. The stopped gas aspect is absent. Vomiting is common. In acute cases the prostration is severe and characteristically out of proportion to the signs of the disease. The stools are bulky, gray, fatty. The blood amylase is elevated if taken early in the attack. Even the most acute attack rarely lasts more than thirty-six hours.

9. FOOD POISONING

A gradual onset usually at night generally gives way to a vague abdominal discomfort which soon explodes into periodic episodes of cramps, vomiting and diarrhea. The attack is fulminating, the prostration more severe than with acute appendicitis. Several individuals who have eaten together may be stricken simultaneously. Opportunity has not been had to test the gas stoppage feature on this disease.

10. ENTERITIS

Regional enteritis, the terminal ileitis described in 1932 by Crohn and Oppenheimer, has revived interest in enteritis. Its symptomatology is said to resemble that of acute appendicitis. In the one patient I have observed, the symptoms were those of chronic partial intestinal obstruction, however. It would be interesting to test the gas stoppage feature in this disease in a known case with the characteristic string sign shown by roentgenogram.

DISCUSSION

The gas stoppage feature was observed in two diseases only: namely, in acute appendicitis and in certain types of acute intestinal obstruction. If the gas stoppage feature is accepted as an important characteristic of acute appendicitis, it will facilitate the diagnosis of the disease in its early stages. This should cut the mortality from acute appendicitis. Not a death occurred when appendectomy was performed within twelve hours of onset regardless of the extent of the disease in a series from Barnes and St. Louis Children's Hospitals which I reported in 1934.1 There were 45 patients operated on within twelve hours after onset out of a total of 755 patients with acute appendicitis of all types, exclusive of subacute appenditicis. The mortality of

the whole group was 7.7 per cent, a figure typical of other series of those days before the use of sulfonamides and plasma.² Delaying operation beyond the first twelve hour period results in mortality figures which rise sharply as the days pass. Thus, the mortality from operation during the first day of the disease was 1.9 per cent; during the second day it was 7.3 per cent; during the third day it was 13.6 per cent; and thereafter it maintained a plateau like level. Delay in operation also is dangerous because it may allow an appendix which is acutely inflamed to rupture and cause peritonitis or abscess. This also increases the mortality rate. Thus, the mortality rate was 1.45 per cent for 686 patients with unruptured acute or subacute appendicitis, compared to a mortality rate of 11.46 per cent for 410 patients with ruptured acute appendicitis with peritonitis or abscess. Delay is particularly dangerous among children for this reason.

By no method, whether clinical or laboratory, is it possible to determine the stage of inflammation of an appendix or whether the inflammation will subside or progress. Two patients were seen recently with comparable findings. Operation was performed in each instance within twelve hours of onset and the appendix removed. One appendix showed little abnormality, the other was gangrenous with paper thin walls ready to burst.

Likewise it is impossible to tell by any means except operation whether or not a given appendix has or will burst. No reliance can be placed on figures or statistics, mine for instance, which indicate that 62 hours is the time after onset when the average appendix ruptures. Figures from the same series show that 73 of the appendices of the group ruptured on the second day of the disease and 23 the first day, while one appendix was found already ruptured at operation performed nine hours after onset. To cite a specific case, an appendix recently burst right after its removal when dropped into the specimen bottle by the circulating nurse. Here, had the operation been at 7 a.m. instead of 6 a.m. the appendix might well have burst inside the patient instead of outside.

CONCLUSIONS

- 1. Of the features of the first pain of acute appendicitis, the gas stoppage feature is considered most important.
- 2. It occurs in almost every case of acute appendicitis and in no other disease except in acute intestinal obstruction of certain types.

4952 Maryland.

BIBLIOGRAPHY

1. Keyes, E. L.: Death from Appendicitis; the mortality from Appendicitis and the Causes of Death following Appendicitis, Ann. Surg. 99:47-68, (January) 1934.

2. Mueller, R. S., and Thompson, J. E.: The Local Use of Sulfanilamide in the Treatment of Peritoneal Infections, J.A.M.A. 118:189-193. 1942.

Elman, R., and Eckert, C. L.: The Treatment of Acute Perforative Peritonitis; the Importance of Operation, Oxygen Inhalations, Plasma Transfusions and the Sulfonamides, J. Missouri M. A. 39:193-198 (July) 1942.

Wattenberg, C. A., and Heinbecker, P.: The Treatment of Acute Appendicitis in Children as Influenced by Chemotherapy, Surgery 12:576-583 (October) 1942.

CASE REPORTS OF BARNES HOSPITAL

CLINICAL AND POSTMORTEM RECORDS USED IN WEEKLY
CLINICOPATHOLOGIC CONFERENCES AT BARNES HOSPITAL,
ST. LOUIS

W. BARRY WOOD, JR., M.D., AND ROBERT A. MOORE, M.D., Editors

CASE 39

PRESENTATION OF CASE

A. B., a 66 year old physician, entered Barnes Hospital for the first time on September 2 and was discharged September 5, 1942.

Chief Complaints.—Pain in the back and fever. Family History.—Irrelevant.

Past History.—Other than pneumonia when a medical student, the patient had had no serious illness and had worked hard as a general practitioner until the present illness. The systemic review was not noteworthy except for the history of slight edema of the ankles in the evening for the last few years.

Present Illness.—About eighteen months before admission, the patient had pneumonia. The site of the lesion and duraton of the disease were not recorded. Shortly thereafter, an evening elevation of temperature was present for several days and thereafter similar episodes were repeated until admission. During this time one attack of renal colic occurred, with blood and pus cells in the urine. This condition apparently cleared completely. Some months before admission the patient began to be awakened at night with pain in the lower back; the pain was relieved when the patient assumed sitting posture. No history of injury was elicited. The pain occasionally radiated downward to the flanks and was felt deep in the abdomen. Roentgenograms of the spine showed marked osteo-arthritis. Roentgen ray studies of the gastrointestinal and urinary tracts were negative. The pain gradually became more severe and the patient entered the hospital for relief and because of the periodic fever. He had lost 10 pounds in weight during the illness.

Physical Examination.—Temperature was 37.6 C., pulse 66, respiration 18, blood pressure 140/80. The patient was an elderly white man, well developed, well nourished, lying comfortably in bed. Pupils reacted to light and accommodation. There was slight deafness in both ears for high tones. The tongue was coated and dry. The size of the heart was within normal limits. No murmurs were heard: the rate and rhythm were regular. The second aortic sound was louder than the second pulmonic. The lungs were clear to percussion and auscultation. The liver was palpable two finger breadths below the costal margin. No masses or tenderness were apparent in the abdomen. There were varicosities of the lower extremities. Neurologic examination was normal. No limitation of motion or deformities of the back were observed.

Laboratory Findings.—Blood count: red cells 4,020,000, hemoglobin 12.7 grams, white cells 5,750,

differential count: segmented forms 58 per cent, lymphocytes 42 per cent. Urinalysis: normal. Blood chemistry: sugar 84 mg. per cent; nonprotein nitrogen 17 mg. per cent, total proteins 8 grams per cent. Kahn test was negative. Hepatic function tests: hippuric acid test 55 per cent excretion. Lumbar puncture: normal dynamics, 55555541000, proteins 33 mg. per cent. Blood culture negative. Sedimentation rate 1.1 mm. per minute. Agglutination tests negative for B. typhosus and brucella. Electrocardiogram showed sinus bradycardia. Roentgenograms of the chest were normal except for calcium in the aorta; cholecystograms were normal.

Course in Hospital.—The patient was placed on a stiff mattress with a fracture board. On the second day he developed a maculopapular eruption on the forehead and cheeks, which the dermatology consultant said was rosacea, and a sulphur lotion was prescribed. After this, the patient's course was uneventful and following the completion of the laboratory tests he was discharged.

Second Admission.—October 30, 1942, to February 17, 1943.

Interval History.—The patient was readmitted for further investigation. His back symptoms had not been relieved and he had continued fever and malaise. In addition, he had begun to have fullness and burning in the right upper quadrant, nausea, belching and indigestion, all after eating.

Physical Examination.—Temperature was 37.4 C., pulse 80, respiration 20, blood pressure 210/95. The patient appeared as before, well developed, well nourished and not acutely ill. The face was red and there were a few red maculopapular spots. In the neck, the carotid arteries were prominent, especially over the right carotid sinus area. The lungs were clear. The heart was not enlarged; no murmurs were heard; the rhythm was regular. The liver was now palpable two to three finger breadths below the costal margin descending four finger breadths on deep inspiration. The edge was rounded and firm and there was tenderness in the right upper quadrant and in the epigastrium. The spleen was palpable just below the costal margin. Rectal examination revealed nothing of note. The reflexes were normal. Varicosities were still present on the

Laboratory Findings.—Blood count: red cells 4,120,000, hemoglobin 12.9 grams, white cells 5,200, differential count: segmented forms 52 per cent, eosinophils 2 per cent, "stab" forms 6 per cent, lymphocytes 30 per cent, monocytes 10 per cent. Sedimentation rate 1.0 mm. per minute. Sternal marrow puncture 14 per cent plasma cells. Urinalysis: albumin 3 plus, no bilirubin, Bence-Jones proteins or porphyrins. Stool was negative. Blood chemistry: sugar 84 mg. per cent, calcium 8.5 mg. per cent, phosphorus 2.5 mg. per cent, phosphatase 2 Bodansky units, congo red test normal, icterus index 6, total proteins 10 grams per cent, albumin 2.3, globulin 7.7, amylase 177 units, formol gel test positive. Blood culture showed no growth. Gastric analysis: no free acid in fasting sample, 8 degrees after alcohol. Roentgenograms of the long bones showed nothing remarkable. The gastrointestinal series was indeterminate. Stereoscopic films of the skull were negative.

Course in Hospital.—A few days after admission the patient began to complain of tightness and discomfort over the heart. This regressed spontaneously. The rosacea which was on the face and forehead became more widespread and in addition he developed a folliculopapular rash on the legs which was thought to be a staphylococcal infection. A diagnosis of multiple myeloma was considered because of the albuminuria, high serum globulin, 14 per cent of plasma cells in the bone marrow and the positive formol gel test. For this reason the patient received small daily doses of P 32 (radioactive phosphorus) over a period of fifty-five days. During this time the Hematology Department followed the patient's blood findings closely. The leukocyte count was never more than 8,000 and there was always a shift to the left in the differential count. The erythrocytes fell to an average of 3.0 million and toward the end of therapy two transfusions of 500 cc. of whole blood were given. The radioactive phosphorus therapy was discontinued because of a leukopenia, chills and fever—the temperature reaching 39 C. on one occasion. Sulfadiazine therapy was instituted for three weeks and at the end of this time the temperature had receded to normal. The patient then began to feel better and eat more and when he had regained his strength sufficiently he was discharged. During his stay in the hospital, backache as previously described was almost constant until shortly before discharge.

Third Admission.—April 8, 1943 to April 18, 1943. Interval History.—Following discharge, the patient's general health improved and he gained ten pounds in weight during the first month. On March 20 he had three severe chills with a temperature rise to 105 F. Chills occurred daily thereafter and the temperature ranged from 100 to 102 F. Malaise, anorexia and loss of weight were prominent symptoms and the patient returned to the hospital for further study and treatment.

Physical Examination.—Temperature was 38.2 C., pulse 108, respiration 24, blood pressure 150/70. The patient appeared acutely ill. The lips were cracked and the mucous membranes dry. There was a fine morbilliform rash with vesicles over the forehead. The skin was dry and scaly. Percussion note was impaired over the right upper lung field posteriorly. Numerous fine rales were heard over both upper lobes and the right middle lobe posteriorly and anteriorly. A large nodular mass was palpable in the right upper quadrant of the abdomen and in the epigastrium; this evidently was the liver.

Laboratory Findings.—Blood count: red cells 4,530,000, hemoglobin 13 grams, white cells 11,800, differential count: "stab" forms 7 per cent, segmented forms 67 per cent, lymphocytes 26 per cent. Sternal bone marrow 16 per cent plasma cells. Urinalysis: light mahogany, albumin plus. Stool benzidine, slightly positive. Blood culture positive

for pneumococcus Type IV. Blood chemistry: total proteins 8.4 grams per cent, albumin 2.7, globulin 5.7. Electrocardiogram: no change from previous record. Roentgenograms of the dorsal spine showed hypertrophic spurring of the dorsal vertebrae and calcification of the intervertebral disk between the ninth and tenth vertebrae.

Course in Hospital.—The patient was started immediately on sulfadiazine therapy and this was continued for seven days. The temperature dropped to an essentially normal level on the seventh day and remained there. The pulmonary signs cleared and the patient improved. Ten days after admission he was discharged.

Fourth Admission.—April 30 to July 4, 1943.

Interval History.—One day after returning from the hospital, the patient had a chill and a fever of 104 F. He was immediately treated with sulfonamide drugs. The temperature returned to normal for a few days and then slight fever recurred each afternoon. The most prominent symptoms were recurrence of pain in the back, weakness and anorexia. There was no cough.

Physical Examination.—Temperature was 37.6 C. pulse 72, respiration 20, blood pressure 180/95. The patient appeared chronically ill and somewhat emaciated. The skin of the face and forehead was covered with blotchy, scaly, encrusted lesions and was dry everywhere. The lungs were clear; the heart showed no change from previous examinations. The upper border of liver dullness percussed to the fifth intercostal space. There was distention and moderate rigidity of the abdomen and resistance to palpation in the right upper quadrant and epigastrium. The liver edge was not made out reliably. The spleen was felt just below the left costal margin. There was some costovertebral tenderness, more marked on the left. Extremities were spindly and over the ankles and dorsum of the foot were small healing papules. Reflexes were normal.

Laboratory Findings.—Blood count: red blood cells 3,610,000, hemoglobin 12.2 grams, white cells 4,900, differential count: "stab" forms 3 per cent, segmented forms 68 per cent, lymphocytes 24 per cent, monocytes 5 per cent. Prothrombin time, one second less than the control. Urinalysis negative except for dark color. Stool negative. Blood culture, no growth. Blood chemistry: total proteins 6.9 grams per cent, albumin 3.2, globulin 3.7. Liver function test: hippuric acid, 25 per cent excretion.

Course in Hospital.—The patient was started on sulfadiazine therapy the day after admission but this was discontinued after ten days because mild fever persisted. The chief complaint was back pain mostly about the left costovertebral region which could be relieved by aspirin, 2½ grains. The patient complained also of constant dull abdominal pain and distention following meals. Enemas seemed to relieve these symptoms. He was given intravenous glucose injections several times and also whole blood for his anemia; the blood count

at one time dropped to 2.84 million cells. Several short courses of sulfadiazine were tried with no effect.

In the six days preceding death, the patient's liver gradually enlarged. There was noted a dilatation and prominence of veins over chest, abdomen and lumbar region. There was also some edema of the lower extremities. Two days before death, fluoroscopy showed a high right diaghragm which did not move. The next day the edema was still more marked, especially in the thighs which were stretched and shiny. On the day of death, early in the morning, the patient stated that he moved his legs and suddenly developed a sharp lower abdominal pain. This pain persisted, especially in the right lower quadrant, and there was some abdominal distention. Rectal examination revealed a fluctuance about the rectal wall as of fluid in the abdomen. He appeared very pale and a blood count showed 2.630,000 red cells and hemoglobin 7.6 grams. At about 4:00 p. m. he went into shock. The pulse was weak and rapid. Respirations were rapid. Emergency therapy was continued throughout the evening to no avail and the patient expired quietly at 11:55 p. m.

A note on the chart by the attending physician states that at onset, the liver was considerably enlarged and easily palpated in the epigastrium. During the last year this had receded definitely until the week before death when it again became very large. The back pain was more or less constant in the lower dorsal region, particularly on the left, and was usually relieved temporarily by sitting up. During the last few weeks this pain occurred in the right side also at about the same level. Physical examination at no time revealed local tenderness.

CLINICAL DISCUSSION

Dr. Harry Alexander: This case is rather involved, but throughout there are certain signs and symptoms which are fairly constant. The presenting symptoms of pain in the back and fever persisted throughout the course of the disease, and the liver was enlarged, as was the spleen. The patient had a high blood protein with globulin predominating. As indicated in the history, a tentative diagnosis of multiple myeloma was made, because of the high globulin and the 14 to 16 per cent plasma cells in the bone marrow. For this condition the patient received radioactive phosphorus. Dr. Taussig, I believe this diagnosis was your suggestion. In view of the completed case, do you think it is a probable diagnosis?

Dr. Albert Taussig: I still think so.

DR. ALEXANDER: The patient's lungs, bones, skull and spine were roentgen rayed. No localized tumors were found in the bone. Would multiple myeloma account for the extremely high fever, and the pain in the back?

DR. TAUSSIG: There is usually fever, although not al-

ways.

DR. ALEXANDER: Without a localizing lesion in the bone can the pain in the back be accounted for by

multiple myeloma?

Dr. Taussic: Sometime ago we had in this very conference a patient who presented a similar picture, and in whom no localizing lesions were found, but a generalized plasma cell infiltration of the bone marrow was observed.

DR. ALEXANDER: Disseminated myelosis, I believe it was called. Did that patient have consistent pain in the back?

Dr. Taussig: I do not remember.

DR. ALEXANDER: As this patient grew worse his globulin diminished. Does it vary in that way in multiple myeloma?

Dr. Taussig: Yes.

DR. ALEXANDER: Dr. Moore, the patient had from 14 to 16 per cent plasma cells in the bone marrow. Is that to

be expected in multiple myeloma?

DR. CARL MOORE: Yes, I think it could be interpreted as plasmacytoma or plasma cell myeloma. On the other hand, a number of other conditions could cause this picture. In the absence of localizing roentgenologic manifestations, I do not think it is possible to be absolute about the interpretation. This number of plasma cells might be found in a number of conditions: syphilis, tuberculosis or, occasionally, cirrhosis of the liver. Occasionally such a picture is present in subacute bacterial endocarditis, in German measles and in kala-azar.

DR. ALEXANDER: I believe it was you who told us that there are some indications that high serum globulin is

a product of plasma cells.

DR. CARL MOORE: I have just looked that point up. There is an excellent paper in Acta medica Scandinavica for 1937 by Bing. He reports that in every case in which he found an elevated plasma globulin there was also an increase in the plasma cells in the bone marrow, and he concludes that the increasing globulin was nearly always, if not always, associated with an increase in the number of plasma cells.

Dr. Alexander: And did you say that an increase of

plasma cells occurs in cirrhosis of the liver? Dr. Carl Moore: Not often, but occasionally.

Dr. Alexander: What else may we consider here? I might tell you that yesterday when I looked this case over, a member of the house staff who had seen the autopsy said that if I would read the terminal event "all would be revealed." I studied the terminal event, and all was not revealed. The terminal event was dramatic. This patient had had a constant pain in his back, felt particularly in the lumbar or lower dorsal region. This was apparently not associated with any deformity of the bone which would account for it. Such a pain in the back is characteristic of pressure on the spinal nerves from some lesion in the retroperitoneal space; carcinoma of the pancreas, for instance. In considering this case I reviewed the anatomy of the region of the pain in his back and I remind you of the structures there; the inferior vena cava emerges from the diaphragm at the level of the first lumbar vertebra. It is in contact with the liver, and close to it are the in-ferior pole of the left kidney and the aorta, the head of the pancreas, overlying lymph nodes and, of course, the neighboring skeletal structures. Dr. Smith, do you think these terminal symptoms of dilated veins of the lumbar region, abdomen and lower chest, edema of the legs, and suddenly swelling liver, are suggestive of obstruction of the inferior vena cava?

Dr. John Smith: Yes. Possibly at or just above the entrance of the hepatic veins, which occurs about the

level of the diaphragm.

DR. ALEXANDER: Would you think of portal obstruction? Would that cause dilatation of the lumbar veins and sudden edema?

Dr. Smith: I have forgotten whether there was any ascites.

DR. ALEXANDER: A fluctuant sensation was felt in the abdomen on rectal examination. If there were obstruction of the portal vein, blood would not reach the liver. If this swollen liver was the result of venous obstruction, it would have to be the inferior vena cava that was obstructed. If this were so, one would expect a lesion of some of the contiguous organs. Dr. Barrett Taussig, do you believe there is any lesion of the liver that will compress the inferior vena cava? There is very little liver tissue beneath it but a great deal on top.

DR. BARRETT TAUSSIG: I have never seen any lesion of the liver that will do that although, theoretically, carcinomatous lesions could do it.

DR. ALEXANDER: Do you feel that here there is any indication of carcinoma of the liver?

DR. BARRETT TAUSSIG: The duration of the disease is rather long in view of the fact that the liver was not immense. In a primary carcinoma of the liver of this duration one would expect some jaundice after eighteen months. If the carcinoma were metastatic, one would expect the liver to be much larger. The fever is compatible. The serum proteins would be extraordinary for carcinoma of the liver, but there is a tendency in that direction—elevation of globulin and decrease of albumin

DR. ALEXANDER: A significant point is that this liver became smaller in the course of the disease. That would be unlikely in carcinoma of the liver, would it not? Do you think this patient may have had cirrhosis of the liver?

Dr. Barrett Taussic: That might be one diagnosis but it certainly does not explain the whole picture. The liver may become smaller in cirrhosis, but there would not be compression of the vena cava.

Dr. ALEXANDER: No. Still one has to explain the fact that this liver became smaller and that its function during the course of the disease appreciably decreased. Many of these facts are in keeping with cirrhosis of the liver

DR. BARRETT TAUSSIG: If I have as many diagnoses as I like, I will agree that one of them might possibly be cirrhosis of the liver.

Dr. Alexander: Dr. Bulger, do you believe this was cirrhosis?

DR. HAROLD BULGER: No, I do not.

DR. ALEXANDER: Dr. Sale, do you think so?

Dr. Llewellyn Sale: I think it is just barely possible.
Dr. Carl Moore: It was not mentioned in the record,
but as this man's anemia developed, his red cells became

macrocytic. That would be in keeping with cirrhosis.

DR. ALEXANDER: I feel that he had cirrhosis of the liver.

DR. ALBERT TAUSSIG: Was there any relation between the shrinkage of the liver and radiotherapy? Assuming that he had multiple myeloma with liver metastases, conceivably the metastases might have regressed as the result of radiotherapy.

DR. ALEXANDER: Dr. Moore, what is the experience with multiple myeloma treated with radioactive phos-

phorus?

Dr. Carl Moore: It is disappointing on the whole, although a few persons improve. Dr. Reinhard has a patient now who is apparently forming bone at the site of an old lesion.

DR. ALEXANDER: Our discussion so far has brought out that this is probably not carcinoma, but that it may be cirrhosis of the liver. Are there other suggestions?

DR. CYRIL MACBRYDE: Did he get a lot of radioactive

phosphorus?

DR. CARL MOORE: He got a fair dose—enough certainly to produce a decrease in the size of the liver if he had myelogenous leukemia.

DR. MACBRYDE: Did he have enough to affect his

blood and cause anemia?

DR. CARL Moore: Yes, it is possible. There is great individual variation in this regard. Some people with polycythemia have a fall in the red count with no more radioactive phosphorus than this man had. But it would be unusual for red cells to become macrocytic.

DR. MacBryde: It can also affect liver cells, can it not? DR. CARL Moore: Yes, but the changes in the liver are

minimal.

DR. ALEXANDER: Is there any indication that the kidney may have become so large as to obliterate the inferior vena cava? I do not think so. There were no urinary symptoms except renal colic some time before his admission. Now, the pancreas—does anyone think

the pancreas may have caused the obstruction? He had 177 units of amylase.

DR. CARL HARFORD: Although a slightly elevated amylase occurred, it is not enough to make a diagnosis of pancreatic disease.

Dr. ALEXANDER: Dr. Scheff, do you believe the pancreas may have been the seat of the disease?

DR. Scheff: I think it is probable. The severe pain in the back is common in carcinoma of the pancreas.

DR. ALEXANDER: It is common in carcinoma of the body and tail of the pancreas, is it not? Obstruction of the vena cava would more likely be from the head of the pancreas, and in that case would you not expect jaundice?

Dr. Scheff: Yes.

DR. ALEXANDER: There are lymph nodes directly about the inferior vena cava. Does the fever, the pain in the back and the enlarged liver and spleen suggest Hodgkin's disease?

DR. CARL Moore: Conceivably, but this man lived for a long time after these symptoms first appeared. It seems to me with Hodgkin's disease he would have shown some enlargement of other lymph nodes during all this time.

DR. ALEXANDER: I am referring to the type in which there are large lymph nodes confined to the retroperitoneal region.

Dr. Albert Taussig: It is interesting that abdominal Hodgkin's disease has not been observed with such enormous globulin values.

DR. ALEXANDER: And 66 is rather old for abdominal Hodgkin's disease. Also fever, anemia and emaciation appear very early in that disease. Well, we are getting nowhere. What about the aorta? Dr. Smith, do you believe he had a lesion of the aorta to account for the compression of the inferior vena cava?

Dr. John Smith: I do not believe so.

DR. ALEXANDER: You remember, however, that if the liver was enlarged and the other veins below this level were enlarged, the obstruction would have to be above or at the hepatic veins.

DR. JOHN SMITH: I do not think the aorta could do that because the vena cava in the chest is suspended—it would move around a good deal. The pericardium has been known to constrict the vena cava above the diaphragm.

DR. ALEXANDER: Dr. Sale, do you think he might have had a dissecting aneurysm? He had constant pain in the back. The terminal history stated that following movement of the legs he had severe pain followed by shock and a fall of a million in the red cells. Could that be explained by a ruptured aneurysm? He had high blood pressure and a calcified plaque in his aorta. Dr. Bulger, do you think it is likely?

DR. BULGER: Not very likely.

DR. ALEXANDER: My diagnosis seems to receive no support. We must here attempt to decide upon the most likely diagnosis. My feeling is that if he had an obstruction of the vena cava above the hepatic veins, it was the aorta rather than the liver which caused it.

DR. CARL MOORE: Although I do not think this is likely, one must admit that his course was compatible with that of an unidentified infection throughout these months. I am impressed with the statement that his diaphragm was high and did not move. One might consider a subdiaphragmatic abscess, with possible thrombophlebitis of the inferior vena cava rather than obstruction by compression.

Dr. ALEXANDER: It came on very suddenly and seemed more like an obstruction.

DR. CARL MOORE: Does anyone have an explanation for the brown, mahogany-colored urine?

DR. ALEXANDER: I do not. Do you? This man passed urine of a curious color, which was immediately dark on passage. It was not due to bile or urobilin or blood. Do you think he might have had porphyria?

Dr. Carl Moore: I think it would have been demon-

strated chemically, because enough to color the urine would be easily detected by chemical test.

DR. Bulger: I would have described the color as orange or pink rather than mahogany. I thought some medication might have caused it. I would like to say that I think whenever there is a mysterious infection of the liver one should think of an amebic abscess of the liver.

Dr. ALEXANDER: That would cause fever, and might compress the vena cava terminally.

Dr. Barrett Taussic: I would like to suggest Boeck's sarcoid. The anemia, fever, hyperglobulinemia, plasma cells in the bone marrow and the enlarged liver and spleen are in keeping.

DR. ALEXANDER: That is a good suggestion, although there is nothing in the lungs or bones to suggest it.

DR. CARL HARFORD: Is it not possible that the back pain might have resulted from osteo-arthritis?

Dr. ALEXANDER: I do not believe so. Under treatment with diathermy, hard mattress and heat there was no improvement. He may have had it, but osteo-arthritis does not explain the obstruction, does it?

DR. HARFORD: No.

Dr. ALEXANDER: Apparently no single diagnosis is clear. Dr. Moore, you suggested an infection. Is this blood picture compatible with infection?

DR. CARL MOORE: No. There is not enough of a shift in the differential count. It is conveivable, but I do not think it is a very satisfactory diagnosis.

Dr. Bulger: This localized lesion in the bone raised the question of tuberculosis with a psoas abscess, or amyloid disease of the liver and spleen.

DR. CARL MOORE: The blood count is in keeping with tuberculosis.

DR. ALEXANDER: In turning this case over to the pathologists, then, we shall have to confess that there is no one diagnosis that seems valid to account for every sign and symptom. Suggestions have been made that this patient had cirrhosis of the liver, a subdiaphragmatic abscess or an aneurysm which ruptured, multiple myeloma, or carcinoma of the pancreas. Does that cover the situation? Chronic infection, amebiasis and tuberculosis have also been suggested.

I would favor cirrhosis of the liver because as the patient became progressively worse his liver grew smaller and liver function became impaired. I believe the obstruction to the vena cava with sudden enlargement of the liver must have been at or above the level of the hepatic veins and an aneurysm of the aorta causing pain in the back and then sudden fall in the red blood cells as it ruptured would explain these symptoms. However, I cannot account for the fever.

DR. ALEXANDER'S DIAGNOSIS

Cirrhosis of the liver. Ruptured aneurysm of the abdominal aorta.

CLINICAL DIAGNOSIS

Myeloma.
Osteo-arthritis.
Rosacea.
Bacteremia, due to pneumococcus Type IV.
Arteriosclerosis, general.
Varicose veins of legs.

ANATOMIC DIAGNOSIS

Arteriosclerosis of the aorta, advanced, with calcification

Saccular aneurysm of the abdominal aorta with a thrombus in the aneurysmal sac.

Erosion of tenth and eleventh thoracic vertebrae with osteoclastic and osteoblastic activity and fibrosis of the marrow.

Fibrous adhesions between wall of aneurysm and liver and right leaf of diaphragm.

Rupture of aneurysm with retroperitoneal hemorrhage, right (1,500 cc.).

Subacute cirrhosis of liver with fatty metamorphosis.

PATHOLOGIC DISCUSSION

Dr. Robert Moore: First, I wish to congratulate Dr. Alexander on the precision and exactness with which he has analyzed this case. The two principal diagnoses are cirrhosis of the liver and rupture of a saccular aneurysm of the abdominal aorta in the position indicated by Dr. Alexander.

Aneurysms of the abdominal aorta generally are assumed to be caused by arteriosclerosis. This is in sharp contrast with the cause of aneurysms of the thoracic aorta, which are due to syphilitic inflammation of the media in most instances. Histologic study of the aortic wall in this patient did not show any evidences of syphilis, either in the thoracic or in the abdominal aorta.

The cirrhosis of the liver is of the subacute type. By that, I mean there were evidences of active necrosis of hepatic cells and moderate to advanced infiltration with leukocytes and polymorphonuclear leukocytes.

CASE 40

PRESENTATION OF CASE

J. R., a retired farmer, aged 72, entered Barnes Hospital for the first time on August 10 and died August 13, 1943.

Chief Complaints.—Blood in the urine, blood on coughing, and loss of weight.

Family History.—The patient's father died in advanced years from a stroke. There was no history of tuberculosis or cancer in the family.

Social History.—The patient was born on a farm in Missouri and lived there all of his life. Good food had always been plentiful. He used no alcohol.

Past History.—The patient's general health had always been excellent. At the age of 16 he was thrown from a horse and injured his back but apparently there were no fractures. At 27 he had severe influenza without complications. At 63, a severe hemorrhage from the rectum occurred, followed by recurrent bleeding for about two weeks. He had had some blood with stools constantly since then.

Systemic History.—A wart on the chest, present for many years, had gradually increased in size over the last several years. There was no history of epistaxis or bleeding gums. Colds were infrequent. During the last five or six years there had been increased frequency and urgency of urination, both day and night. The scrotum had been enlarged for the last six or seven years.

Present Illness.—Late in December 1942, the patient voided what appeared to be pure blood. This manifestation repeated itself several times within a few hours. At no time was there pain or any increase in urgency or frequency over that of the previous several years. Since then the urine had always been discolored from a faint pink to apparently frank blood with clots. Toward the latter part of March 1943 the patient was awakened at night by a profuse flow of blood from his mouth. This induced severe coughing. He estimated that he lost about 1 quart. One week later, a similar episode occurred in the night and at this time about a cupful of blood appeared. He spent five weeks

in bed with no further hemorrhage, excepting that in the urine, but there was a persistent cough which produced some clear sputum, occasionally flecked with vellow. The cough gradually diminished and he felt much improved. In June, he suddenly developed a sharp pain beneath the right shoulder blade which radiated to the opposite side. This persisted, with varied intensity, until admission. Early in July, there occurred another slight hemorrhage from the lungs, a similar one on July 30, and other small hemorrhages, about one each day for the following ten days. They usually appeared early in the morning. On the day of admission, the patient coughed up about 1 pint of blood. He entered Barnes Hospital for diagnosis and for relief of the pain in his right lower back which had increased in intensity. Fever and night sweats were denied. He had lost some 30 or 40 pounds in weight during the last eight months and suffered increasing weakness. At one time, the patient's wife noted a lump on the right side of his back. The patient was unaware of this. Apparently it was not tender, and gradually disappeared during the course of his illness.

Physical Examination.—Temperature 38.1 C., pulse 104, respiration 20, blood pressure 180/95. There were a few papillomatous lesions on the anterior chest wall. The eyes showed no significant lesions. The mouth was edentulous. Lung expansion was equal on both sides. Vocal fremitus was diminished over the left upper chest and slightly increased over the upper and middle portions of the right chest posteriorly. Breath sounds were increased at the right apex and right base posteriorly adjacent to the scapula. There were no rales. The heart was not enlarged; its rhythm was regular and rapid and there were no murmurs. A2 was accentuated. The abdomen was soft with some tenderness in both upper quadrants and over the bladder. A soft mass was palpated deep in the right upper quadrant which descended on respiration. There was fluid in the scrotal sac. The left epididymis contained three firm, nontender nodules measuring about 1 cm. in diameter. The vas was thickened between the nodules and up to the inguinal ring. The prostate was enlarged to twice normal size as were the seminal vesicles. There was some right costovertebral tenderness. No neurologic lesions were manifest.

Laboratory Findings.-Blood count: red blood cells 4,560,000, hemoglobin 14 grams, white blood cells 9,150, differential count: "stab" forms 7 per cent, segmented forms 70 per cent, lymphocytes 22 per cent, monocytes 1 per cent. Urinalysis: specific gravity 1.018, acid, albumin 3 plus, sugar negative; microscopic: occasional hyaline cast, 40 to 50 white blood cells and occasional red cell per high power field. Kahn test negative. Sputum examination: acid-fast bacilli were reported from the stained smear but on reexamination these were thought to be precipitated stain. Prothrombin time: control 25 seconds, patient 27. Clotting time: 4 minutes.

Course in Hospital.—On the day following admission, the patient had a sudden massive hemoptysis and became cyanotic. Numerous rales appeared in the left chest and the patient became extremely dyspneic and cyanotic. Og inhalation and suction relieved the symptoms somewhat. Urinalysis on that day was similar to that on admission with the exception that many red blood cells were present. There was a gradual rise in temperature. The day following hemoptysis the red blood count had fallen to 3,850,000 and the hemoglobin to 11 grams. A transfusion was given. On the fourth hospital day the patient had another massive hemorrhage and died soon thereafter.

CLINICAL DISCUSSION

DR. HARRY ALEXANDER: There is an absence in this case of a good deal of laboratory data which would be extremely helpful. No roentgen rays were taken because this man was only in the hospital for three days and he was very ill. The most prominent symptom was pulmonary hemorrhage. Dr. Goldman, what would you consider the most probable cause of this pulmonary hemorrhage, in view of the other findings in the case?

Dr. Alfred Goldman: Tuberculosis must be the first consideration. It is by far the most common cause of

fatal pulmonary hemorrhage.

Dr. Alexander: In this case there were signs of infiltration in the left lung at the apex and at the base. If this is tuberculosis, would you presume that the left lung was considerably involved?

DR. GOLDMAN: Yes. There were a few more physical

signs on the right side, but at the time of the final fatal hemorrhage a great many signs appeared on the left.

DR. ALEXANDER: Certainly you would expect to find a very extensive lesion in the left lung. What about fatal pulmonary hemorrhage at the age of 72, in a man who had otherwise seemed well? If genito-urinary tuberculosis were found to be associated, would that be surprising?

DR. GOLDMAN: We assume that 72 is old for tuberculosis to begin. However this patient may have had the disease for some time. As a matter of fact, we do recognize tuberculosis in the aged today more than we

formerly did.

Dr. Alexander: I presume we are agreed that if this man had tuberculosis of the lungs, he had tuberculosis of the genito-urinary tract also. Which would come first?

Dr. Goldman: Usually tuberculosis of the lung is first. It reaches the genito-urinary tract by way of the blood stream.

Dr. Alexander: A nodule was observed in his epididymis. Is that a common site for genito-urinary tuberculosis?

Dr. Goldman: It is probably the most common.

Dr. Alexander: How do these cases of tuberculosis extend? Would the infection extend from the epididymis into the vas and the prostate? It goes with the current, does it not?

Dr. GOLDMAN: That is right.

Dr. Alexander: What about the fluid in the scrotal sac? Is that common?

Dr. Goldman: No, I do not think so.

Dr. Alexander: Dr. Wilhelmi said he thought it was "not uncommon." Do you agree, Dr. Hageman, that the sequence thus far is logical?

Dr. Paul Hageman: It is very suggestive.

Dr. Alexander: What about sudden hematuria in tuberculosis of the genito-urinary tract? This was his presenting sign. Dr. Goldman: It is frequently seen in tuberculosis of

the genito-urinary tract.
Dr. Alexander: This man suddenly and painlessly voided a great deal of blood, and continued to do so from time to time; he had had a history of increasing frequency and urgency. Where did this bleeding come from? There is evidence that he had involvement of his epididymis, vas and, possibly, of his prostate. Is it presumed that there was more extensive involvement of the genito-urinary tract?

Dr. Goldman: The bladder may have been involved. The prostate is also a common source of hematuria.

Dr. Alexander: Do you think his kidneys may have been affected?

DR. GOLDMAN: Possibly, but blood from the kidney would probably have given more symptoms. The kidneys are often affected first in genito-urinary tuberculosis.

Dr. Alexander: Would there be tubercle bacilli in the urine in pulmonary tuberculosis without involvement of the kidneys?

Dr. Goldman: Yes.

Dr. Alexander: I presume a patient may have renal tuberculosis without any signs. So we may postulate that he had tuberculosis of the lungs and genito-urinary tract, certainly of the epididymis. In December 1942, a 72 year old man exhibited a marked hematuria, which implies that there was an eroded vessel in a tuberculous abscess. This may have been in the bladder, kidney or Four months later the same thing happened an eroded vessel in a tuberculous abscess in the lung. Does not that seem to be a very singular coincidence?

Dr. Barry Wood: Why do you think it strange?

Dr. Alexander: In the first place I believe that gross hematuria to this extent, with clots, is an unusual manifestation of tuberculosis of the kidney or genito-urinary tract. Red cells in the urine for a long time are common, but a sudden hematuria to this degree I believe is uncommon. Then this man was 72 years old, had been losing weight and had the manifestations of tuberculosis. One presumes a large abscess in his genito-urinary tract and another in his lung, each of which eroded a big vessel. Does not that sound like a coincidence to you?

Dr. Wood: Yes, in that both are relatively rare symptoms, both occurring in the same patient. It is an indication of a rapidly advancing tuberculous infection.

Dr. Alexander: If he was essentially well except for some urinary difficulty and within four months acquired all these lesions that the physical signs show, it certainly was a rapidly advancing infection.

Dr. Carl Moore: Is it not unusual to observe a febrile patient, with tuberculous involvement of this apparent degree, whose blood count and differential are normal?

DR. ALEXANDER: We have no accurate data on that. The patient denied having had any previous fever or night sweats. What differential count would you expect?

Dr. Carl Moore: I would expect the white count to be elevated, although it may be normal. There should be a considerable shift in the polymorphonuclear leukocytes so that the percentage of stab forms would be greater than this; and I would expect a higher monocyte count, although that is not an invariable accompaniment.

Dr. Alexander: About what would you expect these values to be?

DR. CARL MOORE: With that many segmented forms I would expect the stab forms to be about 14, not so

many lymphocytes, 10 or more monocytes.

DR. Alexander: Would that be fairly constant? Would it be reasonably diagnostic?

Dr. Carl Moore: I do not believe it would have diagnostic value for tuberculosis specifically. But the blood picture in this case has differential diagnostic value in making an infectious process seem unlikely.

DR. ALEXANDER: I am not clear why the picture is against an infectious process since he had 70 segmented forms and 7 stab forms.

Dr. Carl Moore: With an infection which involved three or four parts of his genito-urinary tract and lung, I believe there should be more of a shift.

Dr. ALEXANDER: Now, what other cause of pulmonary hemorrhage is common?

Dr. Hageman: This man could have had a carcinoma of the lung, of which pulmonary hemorrhage is a common presenting symptom.

Dr. Alexander: Do you think he might have had a carcinoma of the lung, Dr. Goldman?

Dr. Goldman: We would have to assume that it was a metastatic growth from the genito-urinary tract, would

Dr. Alexander: Yes, probably. Do you think there is

any indication that this might be so?

DR. GOLDMAN: There was hematuria—a very important sign. Painless hematuria is the great warning signal of neoplasms of the kidney and, when it occurs, even once, it deserves a careful investigation. There was also loss of weight.

Dr. Liewellyn Sale: I am very much inclined to take the same line of reasoning as Dr. Goldman. There was a mass palpable in the right upper abdominal quadrant. I think the two presenting symptoms of hema-turia and hemoptysis could well be explained by a tumor of the genito-urinary tract resulting in great, painless hematuria, and, later, in metastatic carcinoma of the lung.

Dr. Lauren Ackerman: From the standpoint of metastatic disease in the lung it is unusual to observe hemorrhage of that character. Recently Donald King wrote up the few cases at Massachusetts General Hospital which were metastatic and had hemorrhage. It is very unusual.

DR. GOLDMAN: I would like to corroborate that. Several years ago in studying a number of cases we found no severe hemoptysis in metastatic lesions.

Dr. Hageman: It is worthwhile to point out that although the sequence of events does not apply here, a primary tumor of the lung metastasizing to the kidney may give hematuria.

DR. ALEXANDER: That is turning it around. If this were a tumor of the genito-urinary tract that metastasized to the lung, what would the most likely tumor be?

Dr. Goldman: Hypernephroma.

Dr. Alexander: How may one account for the nodule in the epididymis? Dr. Sobin tried to look it up and found a statement in Ewing that 75 per cent of hypernephromas in children are associated with a very small adrenal rest in the epididymis. If this is a tumor, we have a hypernephroma giving rise to renal bleeding, metastasizing to the lung. But Dr. Hageman suggests a primary tumor of the lung, metastasizing to the kidney and giving hemoptysis and hematuria. Do you think that is possible, Dr. Ackerman?

Dr. Ackerman: It is possible, out I would not be much in favor of it.

Dr. de la Balze: I would suggest chorionepithelioma of the testis.

Dr. Alexander: That tumor metastasizes freely. Does it bleed?

Dr. de la Balze: Yes, it is a very vascular tumor. Dr. Ackerman: This patient is old for an embryonal tumor.

Dr. Edward Massie: What about rectal bleeding?

Dr. Alexander: He had rectal bleeding some five or six years before the onset of the presenting symptoms.

You think it may have been a blood dyscrasia?

DR. Massie: We must consider a possible primary rectal lesion-a rectal carcinoma.

DR. ALEXANDER: Might this be a blood dyscrasia, Dr. Moore?

DR. CARL MOORE: It is extremely unlikely. The only thing one could think of would be a thrombocytopenia. Massive hemoptysis and hematuria would be unusual in this. I might point out that this data is very inadequate. We do not know the bleeding time, which would be a great deal more helpful than the clotting and prothrombin time.

Dr. Alexander: Dr. Moore, are you surprised that this

man who had been bleeding for months had a red blood cell count of four and a half million?

Dr. Carl Moore: I am more surprised at the hemoglobin of 14 gm. A normal adult male has a tremendous power to regenerate hemoglobin, but not at this rate.

Dr. Alexander: Do you think he may have had

polycythemia?

DR. CARL MOORE: He has none of the clinical manifestations that would be expected. In two thirds of the cases the spleen is palpable. That leaves only a 33 per cent chance. He had no headache, no itching of the skin, no history of a very ruddy complexion. These factors I think reduce the 33 per cent chance even further.

DR. ALEXANDER: Dr. Massie, this man had hypertension and massive hemorrhage. Is there a possibility that the

aorta ruptured into a bronchus?

Dr. Massie: No, because then the other symptoms would have to be explained on the basis of another disease.

DR. ALEXANDER: Dr. Wood, what are your thoughts? DR. Wood: I think an explanation of his hemoglobin and red count may be the well-known fact that people are prone to exaggerate the volume of blood they lose. I am sure I would exaggerate it myself. The estimates of "cupfuls" and "quarts" may be inaccurate. DR. SALE: Do these statistics that were quoted about

Dr. Sale: Do these statistics that were quoted about metastatic involvement of the lung and hemoptysis include hypernephroma and adenocarcinoma of the kidney? I had a case of adenocarcinoma of the kidney in which there was hemoptysis.

Dr. Ackerman: It does occur, but it is unusual.

DR. BERTRAND GLASSBERG: What about Henoch's purpura?

Dr. ALEXANDER: I think these manifestations are too violent for that.

DR. Wood: Dr. Alexander, would you be willing to

commit yourself to a diagnosis?

DR. ALEXANDER: I would have been willing to take a position which I now hesitate to take. I am impressed with the coincidence of the manifestation of massive hematuria as an initial finding of tuberculosis of the genito-urinary tract, and later massive bleeding from the lungs. It was my feeling that this was a tumor, possibly primary in the genito-urinary tract. But now that I am told that metastatic tumors so rarely result in hemoptysis, I am off that position. I would be willing to flip a coin between tuberculosis and a tumor.

DR. ALEXANDER'S DIAGNOSIS

? Primary neoplasm of the kidney, with pulmonary

? Pulmonary tuberculosis with complicating renal tuberculosis.

CLINICAL DIAGNOSIS

Tuberculosis of lungs.

Tuberculosis of urinary tract.

? Tuberculosis of gastro-intestinal tract.

Hydrocele of tunica vaginalis.

? Hypertensive vascular disease.

ANATOMIC DIAGNOSIS

Fibrocaseous tuberculosis of the posteriomedial part of the upper lobe of the left lung with cavity formation and extension to the pleura and adjacent mediastinum.

Tuberculosis of the wall of the aorta with ulceration and rupture of the aorta into the tuberculous cavity in the upper lobe of the left lung.

Fluid and clotted blood in the trachea, bronchi and

bronchioles of the lung, and in the stomach.

Bronchogenic tubercles in the upper lobe of the left lung.

Scattered miliary tubercles in all lobes of the lungs and in the left testis.

Tuberculous osteomyelitis with abscess formation in

the bodies of the tenth and eleventh thoracic vertebrae.

Tuberculous pyelonephritis.

PATHOLOGIC DISCUSSION

DR. MARGARET SMITH: There was tuberculous inflammation, involving all coats of the aortic wall, which was continuous with a tuberculous process in the adjacent lung and pleura. Caseation had occurred at the point where the aorta ruptured. No true aneurysm had been formed but a partially organized clot in the tissue at the base of the ulcer in the aorta indicated that previous bleeding had occurred into the surrounding tissue. The tuberculous lesions were extensive in the kidneys, bladder and especially in the prostate, any one of which might have accounted for the hematuria. The source of the rectal bleeding was not found. There was a polyp of the colon and a Meckel's diverticulum but no ulceration of the mucosa associated with either of these.

SAYS COLD VACCINE SALES UNWARRANTED COMMERCIAL ASSAULT ON PUBLIC PURSE

The prescription and sale of cold vaccines is an unwarranted commercial assault on the public pocketbook, The Journal of the American Medical Association

for January 22 declares. The Journal says:

"Recent communications to the offices of the American Medical Association indicate that the prescription and sale of cold vaccines is again taking place on a large scale. This, in the face of the recognized lack of scientific evidence for the value of these preparations, is indication of irresponsibility on the part of some manufacturers of pharmaceuticals. The scientific evidence against the value of oral cold vaccines is overwhelming; consequently individual physicians and firms who deal in pharmaceuticals and who lend themselves to wholesale uncontrolled distribution of such preparations are perpetrating an unwarranted commercial assault on the public pocketbook."

SENATOR MURRAY'S CHARGES UNWARRANTED

Proponents of the Wagner-Murray-Dingell bill must be finding it difficult to find supporters for their proposals if it is necessary to support them by making unwarranted charges about opponents, *The Journal of the American Medical Association* for January 8 declares. *The Journal* says:

"A statement released by Senator James E. Murray of Montana, whose name is familiar to physicians as one of the participants in launching the Wagner-Murray-Dingell bill, charges that the American Medical Association has set up a committee in Chicago which is sending out a huge amount of propaganda intented to distort and falsify the bill and cites a pamphlet published by the National Physicians' Committee. Simultaneously with this release Dr. E. H. Cary, president of the board of the National Physicians' Committee, issued a statement to the effect that the committee 'is in no way connected with the American Medical Association except in that it is a committee of physicians and the physicians are members of the Association.' From the headquarters office a statement was issued to the effect that 'there is no connection whatsoever, officially or in the form of financial support, between the American Medical Association and the National Physicians' Committee, except that the House of Delegates of the American Medical Association has given its approval to the efforts not only of the National Physicians' Committee but of any other reputable organization that will aid in defeating this pernicious legislation.' Senator James E. Murray would render the American people a better service by making certain of the alleged facts before making unwarranted charges. The proponents of the Wagner-Murray-Dingell bill must find the going tough if it is necessary to support it by this type of propaganda."

THE JOURNAL

of the

Missouri State Medical Association

623 Missouri Bldg. Telephone: Newstead 0404-05

Subscription - - - \$3.00 a year in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent.

FEBRUARY, 1944

EDITORIALS

THE ANNUAL SESSION

The 87th Annual Session of the Missouri State Medical Association will be held April 23, 24 and 25, in Kansas City at the Municipal Auditorium. Luncheon and banquet meetings will be held at the Muehlebach Hotel.

The session will include a half day more scientific work than the 1943 Session. All day Monday and Tuesday morning will be devoted to scientific presentations which are being selected by the Committee on Scientific Work to give the most practical material possible in this length of time.

The Session will open on Sunday afternoon with the House of Delegates convening at 2:00 p.m. The second meeting of the House of Delegates will be on Tuesday afternoon. The Council will meet Monday morning prior to the scientific session and on Tuesday afternoon following the meeting of the House of Delegates.

Several luncheon meetings are being planned for Monday and Tuesday noons. The Annual Banquet in Honor of Past Presidents will be held Monday evening. Secretaries and presidents of county medical societies will be guests of the Association at a banquet on Sunday evening.

Forty-seven companies will display their products in the commercial exhibits.

Committees for the Annual Session follow:

General Committee on Arrangements: Drs. H. L. Mantz, Kansas City, Chairman; A. S. Bristow, Princeton; R. W. Kennedy, Marshall.

Executive Committee: Drs. Morris B. Simpson, Chairman; H. L. Mantz, C. Edgar Virden, Kansas City.

Committee on Exhibits: Drs. George H. Thiele, Chairman; Charles F. Grabske, J. G. Webster, J. W. Grauerholz, Kansas City.

Committee on Hall and Arrangements: Drs. Max Goldman, Chairman; K. A. Davis, H. M. Gilkey, A. Graham Asher, T. A. Kyner, Kansas City.

Committee on Publicity: Drs. V. T. Williams,

Chairman; Harry Lapp, C. B. Schutz, C. H. Wyatt, Kansas City.

Committee on Entertainment: Drs. C. K. Shofstall, Chairman; J. E. Castles, W. M. Korth, Kansas City. Committee on Finance: Drs. Orval B. Withers.

Committee on Finance: Drs. Orval B. Withers, Chairman; Fred B. Kyger, Harold M. Roberts, Kansas City.

Committee on Hotels: Drs. Frank B. Leitz, Chairman; E. C. Carrier, C. R. McCubbin, F. E. Feierabend, Kansas City.

Committee on Past Presidents' Banquet: Drs. James R. McVay, Chairman; Harry L. Jones, O. S. Gilliland, A. E. Eubank, B. Landis Elliot, F. R. Teachenor, Kansas City.

POSTWAR PLANNING COMMITTEE

Pursuant to the action of the House of Delegates of the Missouri State Medical Association at the 1943 Annual Meeting, Dr. A. W. McAlester, President, appointed a Committee on Postwar Planning. The personnel of this Committee as approved by the Council at its meeting, October 24, 1943, is given on page 30.

The members of the Association should be cognizant of this Committee and of the fact that its members accepted appointment on it not for personal ambition but with the intent of continuing service to the public, to the profession and, particularly, to those of the medical and allied groups who have broken home contacts, have left practices and families, to serve the cause of the Allied Nations. This Committee has no precedent to follow but must create its own scope of activities, decide upon its problems, its programs, its limitations and responsibilities. The intent of its members is that it shall serve as a clearing committee to correlate, to cooperate, to integrate with the general officers and other committees of this Association, and to delegate or assign certain problems to now existing committees. To avoid overlapping of functions and duplication of effort shall be an ambition. From time to time members of other committees will be requested to meet with this group to offer such recommendations as may emanate from these various committees, to discuss matters that will come from other sources, and to receive assignment of certain duties and responsibilities.

The Postwar Planning Committee expects to extend the scope of its studies and surveys beyond the medical profession. It is confidently anticipated that the Missouri Dental, Hospital, and Nurses Associations, Public Health agencies, Associated Industries, organized labor, agricultural organizations, and possibly others, shall be invited to send representatives to some of its meetings. To obtain the basic and underlying facts for formulating any plan it will be imperative to have the views of representatives of these various organizations.

Medical care is only a part of the widespread and economic problems involving the several publicized freedoms that have become the bywords of the world. The flame or torch of medicine, with its disseminated light that has to a high degree guided the world, is at least temporarily smoldering if not snuffed out over the entire circumference of the world except in the English-speaking countries. There must be a refilling, a trimming and a relighting of that torch for world-wide service. To America, most if not all of our Allies, and probably all of the stricken countries, now look for medical aid, guidance and light. This unquestionably will continue for from ten to fifteen years after major hostilities cease. One of the problems is to prepare toward that end.

Because of the numerous changes that have been instituted and others that will be necessary in the decade ahead, medicine faces one of the most critical periods in its history. Its responsibilities were never greater, its problems have never been more difficult and its possibilities were never half so challenging. Its success in adjusting to war and postwar needs and in meeting the challenge of this period will have much to do with future progress and prosperity of this, our country, and the peoples of the world. To improve and equalize medical services to all peoples is one of the first problems to face. The members of this Committee will give of their time, energy and thought, but unless the rank and file of the men in the practice of medicine in Missouri give their cooperation and some of their energy and thought, history will record this as having been only another committee. The Committee asks of the membership of the Missouri State Medical Association and all other agencies having the welfare of this commonwealth at heart to consider the problems of postwar medicine in Missouri, and make available to this or some other cooperating committee constructive thoughts and recommendations.

SMALLPOX IN MISSOURI

The relation of vaccination of school children to the incidence of smallpox is well shown in the statistics compiled by Hampton of the United States Public Health Service. The states are divided into seven categories and the annual rate per 100,000 population for smallpox calculated. These seven categories and the rates for 1938-1941 are: states in which vaccination is a prerequisite to school attendance regardless of the presence or absence of smallpox, 0.8; states in which vaccination of pupils may be required at any time, 3.0; states having various permissive provisions regarding smallpox vaccinations, 3.6; states having varying provisions requiring or authorizing the exclusion of unvaccinated persons from school only when smallpox is present or threatened, 6.3; states for which no important provisions in law or regulations were found regarding vaccination, 11.1; and states having various prohibitive provisions regarding the requirement of smallpox vaccination, 13.2.

Missouri is listed among the states without important provisions in law or regulations with a rate of 12.9. Of the forty-eight states there are thirty-

three with a better record. Maryland, Massachusetts, New Hampshire, Rhode Island, District of Columbia, Maine, New Jersey and Delaware did not have a single case of smallpox during this four year period. Calculated against the population in the years 1938 to 1941 this means in cold figures that there were 488 cases of smallpox in Missouri in each year. If Missouri had been a state with adequate laws and experienced the average annual rate of 0.8 there would have been 30 cases. In other words there were 458 cases of smallpox in Missouri in 1938, another 458 in 1939, another 458 in 1940 and still another 458 in 1941, which could have been prevented by adequate enforcement of public health measures. Even more impressive is the fact that there were in each of these years avoidable deaths, mostly among children.

If the State Department of Health does not have the authority, then the medical profession should take the lead in educating the public to the point where the Legislature will act and provide effective statutes. Once again the discussion brings one back to a basic premise: medicine is in possession of knowledge to prevent many diseases, a knowledge that is not used. The answer is not to pass a law and make 'em do it, but rather education so that the people will demand preventive measures. Who is in a better position to direct this education than the medical profession?

A CHALLENGE

Suppose the Wagner-Murray-Dingell bills are killed in committee in the present Congress. Is it not reasonable to assume that similar legislation will be introduced in the next Congress unless the social schemers have their thunder stolen by the elimination of the basis upon which such legislation is predicated? Those who are sponsoring S. 1161 and H. R. 2861 are probably secretly expressing satisfaction over the publicity this social security proposal is receiving. This publicity is being secured primarily through the efforts of the opponents and consequently the proponents are gaining extension of their socialistic ideas at the expense of those groups opposing a trend toward state socialism. Surely those individuals who instigated these bills do not expect, at this time, such drastic legislation to be enacted. However, they probably do anticipate the extensive opposition to S. 1161 and H. R. 2861 indirectly to gain support for future socialistic proposals by bringing the ideas before many easily convertible persons. A part of the success of any advertising campaign is gained from a constant repetition of the advertiser's name and product, regardless of the quality of the product.

Granting that the Wagner-Murray-Dingell bills are not passed by the present Congress, it would follow that constructive offensive action by the medical profession of this country to meet the problems encountered in delivering medical services to all of those who need it must be taken.

Otherwise, powerful future attempts to federalize the practice of medicine may be anticipated. Mere argument against such attempts, by pointing out the wonderful record of medicine in the United States, will not satisfy those who cannot secure, for one reason or another, needed medical attention. Furthermore, no organization can long remain on the defensive—it must sooner or later assume the offensive or lose its effects. The medical profession is no exception to the rule in this respect. Will American medicine meet the challenge? Are prepaid voluntary medical insurance plans, similar to those now being sponsored by various state and county medical societies, the antidote for socialized medicine?

SOCIAL HYGIENE LEGISLATION

Missouri was one of several states whose legislatures passed social hygiene measures during 1943, the Missouri measure being the premarital law which became effective January 1, 1944.

A survey of the progress of social hygiene legislation during 1943 has been made recently by the Legal and Protective Service of the American Social Hygiene Association.

Indiana, Nebraska and Wyoming passed premarital examination laws requiring examination by the physician of both applicants for a marriage license including a blood test for syphilis as a prerequisite for a marriage license. Idaho, Georgia, Kansas and Nebraska adopted prenatal examination laws for syphilis. There are now thirty states which have premarital laws for the protection of marriage from syphilis and thirty states which have prenatal laws protecting babies from syphilis. The first premarital examination law was passed in May 1935 by Connecticut and the states of New York and Rhode Island enacted the first prenatal examination laws in 1938.

In Alabama a law was adopted which requires all inhabitants of the state between the ages of 14 and 50 to have an approved blood test for syphilis and an appropriation of \$75,000 was provided to carry out provisions of the law.

Arkansas, Florida, Georgia, Oklahoma, Tennessee, Texas and West Virginia adopted new laws for the repression of prostitution, making a total of nineteen states which now have adequate legislation against most of the aspects of prostitution. Ten other states have good legislation against prostitution with the exception of those provisions concerning the activities of customers of prostitutes.

The following states strengthened their venereal disease control laws, particularly in relation to the reporting, treatment, quarantine, follow-up and finding of persons with an infectious venereal disease: Connecticut, Florida, Indiana, Maine, Maryland, Montana, New Mexico, North Dakota, Oklahoma, Oregon, Tennessee, Vermont and West Virginia.

The premarital examination laws of California, Connecticut, Illinois, Iowa, Massachusetts and Vermont were amended by the legislatures to obtain smoother operation.

NEWS NOTES

Capt. Vern T. Bickel, Lamar, while on furlough addressed the Rotary Club of Lamar.

Dr. George W. Reeves, Steelville, has been named superintendent of the Confederate Home at Higginsville.

The 18th annual meeting of the National Conference on Medical Service will be held on February 13 at the Palmer House, Chicago.

Dr. W. E. Keith, Kansas City, was elected an honorary member of the Reading (Pa.) Eye, Ear, Nose and Throat Society on November 17.

Dr. Robert E. Schlueter, St. Louis, has been appointed a member of a permanent Board of Honorary Consultants to the Army Medical Library.

Dr. L. M. Garner, Higginsville, district health officer, spoke on "Civilian Health in Wartime" before the Sedalia Kiwanis Club on December 9.

Dr. Harry B. Stauffer, Jefferson City, has been appointed to the staff of the University of Missouri Student Health Service and will have charge of the eye clinic.

Opposition to the Wagner-Murray-Dingell bills was voiced at a recent meeting of the Scientific Section of the Proprietary Association of America held in New York.

Dr. Vincent T. Williams, Kansas City, was presented a merit certificate and a gold key in recognition of his service as editor of the *Bulletin* of the *Jackson County Medical Society* at the annual Christmas assembly of the Society.

Dr. Evarts A. Graham, St. Louis, has been designated Charles Mickle Fellow for 1943 by the University of Toronto. The award was made in recognition of Dr. Graham's discovery of a method of testing gallbladder function and development of a new diagnosis and treatment of cancer of the lung.

The following members were accepted into fellowship in the American College of Surgeons in 1943: Drs. E. Humber Burford, Thomas H. Burford, Bertrand D. Coughlin, Robert Elman, John J. Hennelly, Edward J. Jordan, Joseph M. Keller, Frank McDowell, John D. Shea, Dominic J. Verda and David O. Weiner, St. Louis; Henry Durst, Fulton; Ronald F. Elkins, Springfield; Enoch N. Gentry, Kansas City.

Dr. Wallis Smith, Springfield, recently was reelected Greene County Chairman of the American Red Cross. Dr. Smith has served in this capacity for several years.

The Chicago Medical Society will present a Midwinter Postgraduate Conference at the Stevens Hotel, Chicago, March 14, 15 and 16. For information address the Secretary, Chicago Medical Society, 30 North Michigan Avenue, Chicago 2, Illinois.

One day War Sessions will be presented by the American College of Surgeons in twenty-two cities distributed throughout the United States during March and April. The session for Missouri, Iowa and Nebraska will be held at Hotel Ft. Des Moines, Des Moines, on March 4.

INCIDENTALLY

FROM THE EXECUTIVE SECRETARY

Lt. Col. D. G. Hall, representing the Surgeon General of the Army, speaking before members of the St. Louis Medical Society at a meeting January 11, said that the Army needs 3,000 more physicians exclusive of interns and residents—that if these physicians are secured within the next three months it is probable that the further need of the Army for medical officers will be satisfied by current medical school graduates.—Comdr. F. J. Braceland, representing the Surgeon General of the Navy, stated that the Navy needs 3,000 more physicians to care for the expanding Navy personnel.—Figures were given indicating that more than 50,000 physicians are serving as medical officers in the armed forces.-Apparently there is a large number of physicians in various states who have been declared available by the Procurement and Assignment Service but who as yet have not applied for commissions.

Sponsors of the Wagner-Murray-Dingell bills may be waiting for the opportune time to bring these measures before Congress for consideration.—That time will be when active opposition to the bills dies down.

Numerous physicians are saying that they are not public speakers and therefore cannot speak before lay groups on S. 1161 and H. R. 2861.—It has been said that anyone can say what he thinks about something if he is sufficiently motivated by his own inner feeling.—A physician does not need many of the attributes of a public speaker to point out to his patients and friends the inevitable results of a system of bureaucratic medicine.—The public is the big loser under such a system.—If that point is kept constantly in mind when talking to laymen the results probably will be astonishing.

The 87th Annual Session of the Association to be held in Kansas City, April 23, 24, 25, is your meeting.—Your presence will enhance its success.—Why not start now to make your plans to attend?

Is it necessary to have a large number of members in a county medical society in order to have an active worthwhile organization? Is mere size the activating force?

RANDOM OBSERVATIONS BY A ROVING REPORTER

The surgeons seem to be having a bad time of it in deciding on the value of sulfonamides in the treatment of wounds. A Committee of the National Research Council reports that after a carefully controlled investigation no evidence of their specific value in the prevention of infection in wounds can be read into the data (Ann. Surg.). On the other hand, our own J. Albert Key is most vehement in his belief that there is an abundance of evidence to justify the routine use of the drugs under these conditions (J.A.M.A.). It is fortunate that controversy in medicine can not be treated like a labor dispute; appoint an arbitrator and out comes a decision; but after all "facts are stubborn things."

What may be regarded as a portent for the future has just appeared in the newspapers: Epidemic of typhus in Naples. A population can not be starved and frozen for four years and not become more susceptible to disease. Remember the 30,000,000 cases of typhus in Eastern Europe after the last war.

The unraveling of the synergistic action of the influenza virus and influenza bacillus reminds one of the old saying "two can live more cheaply than one." No matter where these two microorganisms are met they live and work together. In swine both are required to reproduce the disease swine influenza and now in the chick embryo the two act together to evoke lesions that neither alone can cause (J. Exper. Med.).

The ways of disease are strange. Some years ago we were told that salmon poisoning in the Pacific Northwest is caused by dogs eating salmon, but that the salmon really have nothing to do with it; actually there is a worm in the salmon infected by a virus in the salmon which is the real cause. Now Shope (J. Exper. Med.) shows that the virus of influenza in its travels from hog to hog may travel through the swine lung worm and the lowly earthworm. Is there no end to which disease-producing agents will not go to avoid detection? But after a complex cycle is unraveled, it all seems so simple.

Sometimes, vision, like disease, is contagious. In the Pentagon Building on the banks of the Potomac, the virus of vision has flown from the staff offices into the office of the Air Surgeon. It is just as well that ultraviolet air-sterilizers were not installed along with the air-conditioners. First, there was the progressive rehabilitation project of the Missourian, Lt. Col. Howard Rusk. Now, from this same group of far-seeing physicians comes a planned postgraduate program of lectures for the younger doctors in the Army Air Forces.

The "noble experiment" in medicine is underway—the allocation of house officers. Is it a success? After just a month, the answer is yes. It has accomplished what it started to do; provide interns for the smaller hospitals. No matter what one may think of the whole idea as it touches him personally, let us not forget that we are citizens of the United States, not of this or that city or hospital. It is the function of medicine to provide care for "all of the people all of the time."

Hail, penicillin, with no apologies to Herr Hitler. A preserver of life is far better than a destroyer of life. And to think, it all came from the casual observation of some Petri dishes which became contaminated with one of those pesky molds. Fate always smiles on those who have their eyes open and who have an open circuit on the association pathways from the visual cortex to the frontal lobe.

ORGANIZATION ACTIVITIES

POSTWAR PLANNING COMMITTEE

The initial meeting of the Postwar Planning Committee of the State Association was held on December 19 at the Missouri Hotel, Jefferson City.

Those present were Drs. M. Pinson Neal, Columbia, Chairman; Ira H. Lockwood, Kansas City; A. R. McComas, Sturgeon; W. L. Allee, Eldon, members of the Committee; A. W. McAlester, Jr., Kansas City; Herbert L. Mantz, Kansas City; Col. W. L. Gist, Jefferson City; Mr. Thomas W. Parry, Jr., St. Louis; Mr. W. H. Bartleson, Kansas City, and Mr. Raymond McIntyre, St. Louis.

This was primarily an organization meeting to discuss the problems of medical education and service in the postwar era, to chart ways and means of aiding returning Medical Officers in establishing civilian practice and of delivering more and better medical care to the people of Missouri.

MISCELLANY

ANNUAL CLINICAL CONFERENCE INAUGURATED BY CHICAGO MEDICAL SOCIETY

The Council of the Chicago Medical Society, appreciating that Chicago is a medical center offering abundant clinical material and able clinicians, is sponsoring

an Annual Clinical Conference at the Stevens Hotel, March 14, 15, 16 and 17.

Plans have been made for four intensive postgraduate days consisting of half-hour lecture and clinic periods beginning at 8:00 a. m. and continuing until 5:30 p. m. each day with intermissions for luncheons and inspection of technical and scientific exhibits. Several one hour "panels" have been arranged. Popular subjects will be covered by specialists in their respective fields.

A dinner will be held on Wednesday evening with a speaker of national reputation on some nonmedical sub-

ject

The Chicago Medical Society believes such a four-day conference will be helpful as a wartime measure to its members and to the profession of the Middle West. All scientific sessions will be held in the Grand Ball Room of the Stevens Hotel. Registration fee will be \$5.00.

It is advisable to make room reservations early.

THE MEDICAL SURVEY PROGRAM

The Selective Service System in Missouri is now ready to put into operation what is known as the Medical Survey Program. The State Director, Col. W. L. Gist, M.C., desires that all physicians in the state be informed of the details of this plan.

The object of this survey is to secure reliable and authentic information concerning the medical history of each and every registrant who is to be inducted into the armed forces. The source of this information is to be from attending or family physicians, schools and

organized agencies.

There is now being appointed for each Local Selective Service Board in the state one or more medical field agents who are recognized social service workers. It will be the field agent's official duty to secure the medical history of registrants. This information when secured will be treated as confidential. The blank form containing this information known as DSS Form 212 will be completed by the medical field agent, placed in an official sealed envelope and delivered to the Local Selective Service Board. This envelope will not be opened by the Local Selective Service Board but will be transmitted to the medical examiners at the induction station when the registrant reports for his final physical examination. When the induction station has completed the examination, this blank form will be returned to State Selective Service Headquarters where it will be placed in a confidential file.

There is to be sent to each and every registrant who is a candidate for induction the following blank forms: DDS Form 210, Identity Verification, for medical history, DSS Form 211, Educational Verification, and a mimeographed work sheet, a copy of which follows:

Name...., Order No....

Please read carefully and answer the following questions in writing using a lead pencil. Do not answer questions below your signature on line (d). When finished mail this back to this board in the enclosed self-addressed envelope which requires no postage.

(X) Name and address of my present family phy-

ician.

(Q) Name and address of present or last employer. 18. Medical History: (a) Has registrant had spells of unconsciousness, convulsions, fits, encephalitis, nervous trouble of any sort, tuberculosis, asthma, hay fever, diabetes, enuresis, stomach ulcer, rheumatic fever, heart trouble; been treated at hospital, asylum or sanitarium; is or has been addicted to alcohol, narcotics or habit-forming drugs;

registrant.

(c) I certify that the answers to Item 18 (a) and 18 (b) are correct.

(d) Signature of registrant.....(e) Date.....

Last, and not least, each registrant will receive a Medical Information Permit which will be signed by him authorizing his attending physician to give such information to the medical field agent as has a bearing

on his fitness for military service.

Many physicians in Missouri will be called upon to assist the medical field agents by supplying accurate and authentic medical history. It is desired that physicians assist in every way they can because this information is vitally important both to the armed forces and to the registrant who is to be examined. Most of the medical field agents, while qualified to do social work, lack practical knowledge as to the importance of certain medical information. Therefore, it is up to the medical profession to furnish the medical field agents medical information which has a direct bearing on a registrant's physical or mental fitness for military service in such a way that it is thoroughly understood by the medical field agents. The medical field agents are doing this work voluntarily without any compensation whatsoever the same as the personnel of local boards and examining physicians. Most of the field agents who are employed by a social agency are doing this work on their own time and not on agency time.

It is to be remembered that this information will be

handled confidentially and is for the sole use of the medical examiners at the induction station and is not to be used in any manner by the Local Selective Boards

in the classification of registrants.

The Medical Survey Program was recommended by the National Mental Hygiene Association and has the endorsement of the Surgeons General of the Army, Navy and the United States Public Health Service. It is believed that if properly executed, it will prevent many young men from entering the armed forces who are not fit for military service and who within from thirty to sixty days would be discharged. This should result in the saving of many thousands of dollars of the taxpayers' money because it is estimated that the expense of inducting one man into the service, keeping him thirty days, and then discharging him amounts to approximately \$2,000.

COUNCILOR DISTRICT AND SOCIETY PROCEEDINGS

ASSOCIATE EDITORS: COUNCILORS OF THE TEN COUNCILOR DISTRICTS

FIRST COUNCILOR DISTRICT

A. S. BRISTOW, PRINCETON, COUNCILOR

Buchanan County Medical Society

The Buchanan County Medical Society held its annual meeting December 1 at the Missouri Methodist

Hospital, St. Joseph.

Dr. Louis C. Bauman was installed as president. Officers elected for the ensuing year are: President-elect, Dr. H. D. Kearby; vice president, Dr. Claude S. Grant; secretary, Dr. H. E. Petersen, reelected; treasurer, Dr. William J. Hunt; censor, Dr. J. M. Allaman; delegates, Drs. M. E. Grimes and Paul Forgrave; member auxiliary committee on public policy, Dr. F. X. Hartigan; member of the board of trustees, Dr. G. A. Lau.

H. E. Petersen, M.D., Secretary.

Nodaway-Atchison-Gentry-Worth Counties Medical Society

The Nodaway-Atchison-Gentry-Worth Counties Medical Society held a dinner meeting at the Linville Hotel, Maryville, December 14, with the president, Dr. Pren J. Ross, Grant City, presiding. Members present were Drs. Charles T. Bell, Leslie E. Dean and William M. Wallis, Jr., Maryville; Charles D. Humberd, Barnard; Henry C. Bauman, Fairfax, and Dr. Ross. Guests were Dr. Reutter of the U. S. Navy Training Unit at the Maryville college; Dr. E. H. Skinner, Kansas City; Dr. Charles T. Flynn, Clarinda, Iowa, and Drs. Earl Baniger and Jesse Miller, dentists, Maryville.

The following officers were elected: President, Dr. Claude D. Haskell, Tarkio; vice president, Dr. Robert C. Person, Maryville; secretary-treasurer, Dr. Charles D. Humberd, Barnard; delegates, Dr. Henry C. Bauman, Fairfax; Dr. Charles D. Humberd, Barnard; Dr. Samuel E. Simpson, Stanberry, and Dr. Pren J. Ross, Grant City.

Dr. Skinner gave an excellent paper on "The Practical Advantages of Cell-Type Recognition in Tumor Therapy and Prognosis." His discourse was illustrated with lantern slides and gave particular attention to various classifications of malignancies as regards their accessibility and their resistance and susceptibility to radioactive therapeutic measures.

As a second feature of the program, Dr. Skinner gave a critical discussion of the Wagner-Murray-Dingell Bill. A prolonged round-table discussion followed.

CHARLES D. HUMBERD, M.D., Secretary.

SECOND COUNCILOR DISTRICT

H. B. GOODRICH, HANNIBAL, COUNCILOR

Randolph-Monroe County Medical Society

The Randolph-Monroe County Medical Society met December 9 in the Club Rooms of Jones Cafe.

After a general discussion of Senate Bill No. 1161 the Society favored going on record as opposing the bill and the secretary was instructed to send a letter to the congressmen opposing the bill. The vote was unanimous.

The Society voted to carry the members in military service, Drs. M. P. Hunter, W. M. Kitchen, J. W. Fleming and J. G. Murphy as members in good standing.

The following officers were elected: President, Dr. E. Huber, Moberly; vice president, Dr. M. E. Leusley, Moberly; secretary-treasurer, Dr. F. L. McCormick, Moberly; delegates, Dr. F. L. McCormick and Dr. F. A. Barnett, Paris; alternates, Dr. T. S. Fleming and Dr. M. C. McMurry, Paris; censor for three years, Dr. P. V. Dreyer, Huntsville.

Those present were Drs. M. C. McMurry and F. A. Barnett, Paris; P. V. Dreyer, Huntsville; J. W. Winn, Higbee; L. E. Huber, C. C. Smith, M. E. Leusley, R. D. Streetor, T. S. Fleming and F. L. McCormick, Moberly.
There being no further business, the meeting was ad-

journed to meet on January 13.

F. L. McCormick, M.D., Secretary.

TENTH COUNCILOR DISTRICT

PAUL BALDWIN, KENNETT, COUNCILOR

Scott County Medical Society

The Scott County Medical Society met December 15 at the City Hall in Sikeston.

Officers for 1944 were elected as follow: President, Dr. George W. H. Presnell, Sikeston; vice president, Dr. A. A. Mayfield, Sikeston; secretary, Dr. W. O. Finney, Chaffee.

The dues of the following members in military service were remitted: Drs. M. G. Anderson, Howard B. Throgmorton and A. D. Martin, Sikeston.

A resolution introduced by Dr. E. J. Nienstedt and seconded by Dr. A. A. Mayfield was passed condemning the proposed Wagner-Murray-Dingell bills (S. 1161 and H. R. 2861). A copy of the resolution was directed to be sent to Senators Truman and Clark and Congressman Zimmerman.

The next meeting will be held in Benton on February

W. O. Finney, M.D., Secretary.

BOOK REVIEWS

48

THE DOCTOR TAKES A HOLIDAY. An Autobiographical Fragment. Mary McKibbin-Harper, M.D. A Bookfellow Book. Cedar Rapids, Iowa: The Torch Press. 1941.

"The Doctor Takes a Holiday," by Mary McKibbin-Harper, 349 pages, published by The Torch Press, 1941, has the charm of all well written books of travel. She has compressed travel experiences of nearly two years into a connected story. Familiar places, strange sights, are vividly described, but in addition the author has visited hospitals, clinics, medical schools, leprasariums and other places made accessible to her by connections with medical friends. She says truly in the introduction that "the trail of the doctor is over all."

Palestine, Egypt, India, China and Japan are the countries visited. In each country she visited the places usually visited by tourists, but she also points out many agencies which are trying to improve conditions in the countries. The book has many colorful descriptions, a nice use of language, many unusual facts, a kaleidoscope of pictures, bits of history and geography. The author shows her sense of humor, puts in her own philosophy and her background of broad learning and Biblical knowledge. Although the book was written nearly two years ago, it is still fresh and interesting and well worth reading.

L. H. G.

DISEASES OF THE BREAST. Diagnosis, Pathology, Treatment. By Charles F. Geschickter, M.A., M.D., Lieut. Commander, Medical Corps, U. S. Naval Reserve; Director of The Francis P. Garvan Cancer Research Laboratory; Pathologist, St. Agnes Hospital, Baltimore. With a Special Section on Treatment in Collaboration with Murray M. Copeland, A.B., M.D., F.A.C.S., Instructor in Surgery, Johns Hopkins Medical School; Visiting Surgeon and Assistant Oncologist, University Hospital, University of Maryland Medical School; Visiting Oncologist, Baltimore City Hospitals. 593 Illustrations. Philadelphia: J. B. Lippincott Company. 1943. Price \$10.00.

The recent volume on "Diseases of the Breast" by Geschickter is one of the most comprehensive books on this subject. The work is divided into seven main parts, each of which is further subdivided into chapters which adequately describe and picture the theme. A full bibliography follows each chapter.

There is a preface, or orientation as it is termed, before each of the seven parts which is quite unique. It outlines or summarizes the purpose of the particular part and enables one to follow the purpose of the author.

The work is a complete story of the development of the human breast, its functions, the influence of the endocrine, pregnancy and lactation, as well as the pathologic processes which may arise and their diagnosis and treatment. A chapter on the experimental work with estrogenic hormones is included.

The book expresses the viewpoint of the author which is based on data accumulated from the records of the Johns Hopkins Hospital and many years research in the laboratory. The conclusions drawn are based on study of this vast amount of material gathered over many years. The work is well illustrated with pathologic sections, clinical examples and statistical tables.

That there are many questions yet to be settled he makes quite clear in his discussion of chronic cystic mastitis "a term not accurate in the strict sense of the word" but applied to a group of benign conditions of the breast which are neither inflammatory nor truly neoplastic. Under this head he classes a group of abnormalities, also termed fibrocystic disease. Mastopathy or mammary dysplasia includes mastodynia, adenosis and cystic disease. The classification of the several forms of this disease and its relation to cancer have been much debated. While the last word has yet to be written, the

opinions of the author are based on his own observations and study, as well as a careful review of the literature

To those of the profession who would like help in an understanding of this most important subject I can recommend this volume. I know of no other work which gives as much information both in text and bibliography.

W. F. I.

ESSENTIALS OF SYPHILOLOGY. By Rudolph H. Kampmeier, A.B., M.D. Associate Professor of Medicine, Vanderbilt University School of Medicine; in charge of the Syphilis Clinic and Visiting Physician to Vanderbilt University Hospital. With Chapters by Alvin E. Keller, M.D., and J. Cyril Peterson, M.D. 87 Illustrations. Philadelphia; Lippincott & Company. 1943. Price \$5.00.

Dr. Kampmeier has written an excellent compact treatise on the essentials of syphilology. A large amount of the material presented is the outcome of his experience as head of the Syphilis Clinic at Vanderbilt University.

The use of actual case reports to illustrate certain points in the text should be very useful. As a whole the illustrations are excellent and the tables easily understandable. The statistics of the Cooperative Clinical Group also are made use of.

Such important subjects as spontaneous cures, asymptomatic infections, false positive serologic reports and massive dose therapy are handled adaquately for the general practitioner.

The following is one of numerous dogmatic but valuable statements: "The diagnosis of syphilis should never be made in the absence of clinical or collateral evidence on the basis of only one positive report on a blood sample."

There are nineteen chapters. The one on congenital syphilis was written by J. Cyril Peterson and the chapters on epidemiology and control by Alvin E. Keller.

The book can be recommended to the student and general practitioner as a useful well-organized and upto-date text on syphilis.

N. T.

NUTRITION AND DIET IN HEALTH AND DISEASE. By James McLester, M.D. Professor of Medicine, University of Alabama, Birmingham, Ala. Fourth Edition, Thoroughly Revised. Philadelphia: W. B. Saunders Co. 1943. Price \$8.00.

It is disconcerting to read the recurring statistical reports which point out that only one fourth of the persons in the high income groups enjoy a good diet; that only 1 per cent of those in the low income groups ingest an adequate diet. Perplexity multiplies in the face of the rarity of detectable clinical evidence of dietary deficiency. A textbook on nutrition might be expected to reconcile the disparity existing between laboratory investigation of nutritional sufficiency and its infrequent presentation by the patient. McLester fails to do this.

The present volume does not differ essentially from its predessessor except insofar as the effort is made to bring the mass of vitamin knowledge up-to-date. Otherwise, there is the same meticulous presentation of the fundamentals, together with diagnostic discussions of the various disease entities and the laborious outlines of diets suitable to each.

The volume will prove helpful to the practitioner who seeks specific diets for the amelioration of the patient's complaints. The new chapter on "Nutrition in Industry" might have been made much more effective. Material calculated for a direct appeal to the workman, either in the form of charts or for lecture, would enable the plant physician to make a direct contribution to the food education of the American family.

B. Y. G.



INDEX TO ADVERTISERS

BOOKS RECEIVED

Abbott Laboratories
Blakiston Company, The32Borden Company9Brewing Industry Foundation17Burroughs Wellcome & Company10, 11
Camel Cigarettes7Camp, S. H. & Company25Cheplin Laboratories, Inc.21Chicago Medical Society33Ciba Pharmaceutical Products, Inc.23Ciba Pharmaceutical Products, Inc.InsertCook County Graduate School of Medicine33
Faith Hospital28Fourth War Loan35
Glenwood Sanatorium
Hamilton-Schmidt Surgical Co.28Hanger, J. E., Inc.26Holland-Rantos Company14
Isle, W. E., Company
Lederle Laboratories, Inc.6Lilly, Eli and Company16Lov-E Brassiere Company20
M & R Dietetic Laboratories, Inc.27Major Clinic Association5Mead Johnson & Company40Medical Protective Company18Milwaukee Sanitarium1Miscellaneous Announcements34Mosby, C. V., Company31Mullen Ambulance Company22
National Pathological Laboratory33Neurological Hospital, The28Norbury Sanatorium18
Ortho Products, Inc
Parke, Davis & Company4Philip Morris & Company29Physicians Casualty Association26Mary E. Pogue School22
Ralph Sanitarium
Julius Schmid, Inc. 37 S. M. A. Corporation 2 Spencer Corset Company 8 Squibb, E. R., and Sons 39 Stearns, Frederick & Company 3 Stokes Sanitarium 34
Tampax, Inc
Wallace Sanitarium26White Laboratories, Inc.13Wine Advisory Board8Winthrop Chemical Company15World Insurance Company34Worrell, Dorothy34
Zemmer Company

THE HEALTH OF CHILDREN IN OCCUPIED EUROFE. By International Labour Office. Montreal, 1943.

GENERAL PRACTICE CLINICS. A Bi-monthly Publication for the General Practitioner. By Washington Institute of Medicine, Washington, D. C. Subscription rate \$9.00 per year, \$25.00 for three years.

Pain. Proceedings of the Association of Research in Nervous and Mental Diseases. Vol. 23. New York Academy of Medicine, New York. With 116 Illustrations and 19 Tables. Baltimore: Williams & Wilkins Company. 1943. Price \$7.50.

Orthopedic Nursing. By Robert V. Funsten, M.D., Professor of Orthopedic Surgery, University of Virginia Medical School, and University of Virginia Hospital School of Nursing, Charlottesville, Va., and Carmelita Calderwood, R.N., A.B. Consultant in Orthopedic Nursing, National League of Nursing Education, New York. With 181 Text Illustrations. St. Louis: C. V. Mosby Company. 1943. Price \$3.75.

A Textbook of Medicine. By American Authors. Edited by Russell L. Cecil, A.B., M.D., Sc.D. Professor of Clinical Medicine, Cornell University Medical College; Associate Editor for "Diseases of the Nervous System." Foster Kennedy, M.D., F.R.S.E. Professor of Clinical Neurology, Cornell University Medical College. Sixth edition, Revised and Entirely Reset. Illustrated. Philadelphia: W. B. Saunders Co., 1943. Price \$9.50.

A Manual of Otology, Rhinology and Laryngology. By Howard Charles Ballenger, M.D., F.A.C.S., Associate Professor of Otolaryngology, Northwestern University School of Medicine, Chicago, Illinois. Surgeon, Department of Otolaryngology, Evanston Hospital, Evanston, Illinois. Second Edition, Enlarged and Thoroughly Revised. Illustrated with 114 Engravings and three color plates. Philadelphia: Lea & Febiger. 1943. Price \$4.00.

CLINICAL LABORATORY METHODS AND DIAGNOSIS. A Textbook on Laboratory Procedures With Their Interpretation. By R. B. H. Gradwohl, M.D., D.Sc. Director of the Gradwohl Laboratories and Gradwohl School of Laboratory Technique; Formerly Director of Laboratories, St. Louis County Hospital; Pathologist to Christian Hospital; Director, Research Laboratory, St. Louis Metropolitan Police Department, St. Louis; Commander, Medical Corps, United States Naval Reserve, Ret. Third Edition. With 726 Text Illustrations in Both Volumes and 57 Color Plates. Volume I and II. St. Louis: C. V. Mosby Company. 1943. Price \$20.00.

Backache and Sciatic Neuritis. Back Injuries-Deformities-Diseases-Disabilities. With notes on The Pelvis, Neck, and Brachial Neuritis. By Philip Lewin, M.D., F.A.C.S. Associate Professor of Bone and Joint Surgery, Northwestern University Medical School; Attending Orthopedic Surgeon, Cook County Hospital; Attending Orthopedic Surgeon, Michael Reese Hospital; Professor of Orthopedic Surgery, Cook County Graduate School of Medicine, Chicago; Lieutenant Colonel, Medical Corps, U. S. Army. Illustrated with 235 Figures. Line Drawings by Harold Laufman, M.D. Instructor in Surgery, Northwestern University Medical School, Chicago; Captain, Medical Corps, U. S. Army. Philadelphia: Lea & Febiger. 1943. Price \$10.00.

THE JOURNAL

MAR 2 : LIBRARY

OF THE

Missouri State Medical Association

The Official Organ of the State Association and Affiliated County Societies

Issued Monthly under direction of the Publication Committee

COPYRIGHTED, 1944, BY MISSOURI STATE MEDICAL ASSOCIATION. ALL RIGHTS RESERVED.

VOLUME 41

MARCH, 1944

NUMBER 3

RALPH L. THOMPSON, M.D., Editor RAYMOND McINTYRE, Managing Editor HELEN PENN, Assistant Editor 623 Missouri Bldg., St. Louis, Mo. Telephone, Newstead 0404-05 PUBLICATION R. C. HAYNES, M.D.

COMMITTEE R. C. HAYNES, M.D.

VINCENT T. WILLIAMS, M.D.

PRESENT STATUS OF CANCER OF THE COLON AND RECTUM

EVERETT D. SUGARBAKER, M.D.

COLUMBIA, MO.

It can be stated safely that, with the means at present available for cancer therapy, the problem in carcinoma of the large bowel has been clarified. The earliest attempts at curing this disease were purely surgical, and the history of colon surgery is bright with the contributions of such pioneers as Littré, Pillore, DuBoise, Duret, Czerny, Maydl, Schede, Block, Paul and many others. During the early part of this century, the names Kraske and Mikulicz had become firmly attached to the resection of rectal and colonic growths respectively. In general, however, the results following the adoption of principals outlined by them, though they represented great steps forward, left much to be desired. It is not strange, therefore, that roentgen ray and radium therapy which were being explored rapidly at about the same time should have been attempted in this group of tumors, but they have not been very helpful. Sufficient clinical data has now accumulated to warrant the conclusion that the use of irradiation in early carcinoma of the large bowel or rectum as an attempt at cure is never justified and that its value even in nonresectable cases is questionable.1

The introduction and popularization by Miles² and Rankin³ of the principle of wide node removal along with resection of the primary growth completely altered the outlook for the patient with rectal or colonic cancer. The importance of their contribution was not at first fully comprehended for it was generally held that the incidence of node involvement in rectal carcinoma amounted to about 30 per cent and in colonic cancer probably to less than that figure. The work of Westhues,⁴ Gabriel, Dukes and Bussey,⁵ Gilchrist and David,⁶ and Coller, Kay and MacIntyre¹ has shown, however, that from 65 to 70 per cent is more nearly the correct

Symposium on Carcinoma of the Large Bowel held at the Ellis Fischel State Cancer Hospital, Columbia, September 8, 1943, at a meeting of the Fifth Councilor District of the Missouri State Medical Association, Dr. W. A. Bloom presiding.

figure for both groups and clearly demonstrates why earlier surgical attempts to eradicate cancer of this organ so frequently had failed.

Let me now, therefore, consider the clinical aspects of the disease, modern methods of surgical treatment, what is now being accomplished by them and, finally, how these results may be still further improved.

INCIDENCE

Cancer of the large bowel is somewhat commoner in males than in females in the ratio of 1.4 to 1, and it is a disease of later life. Eighty per cent of patients at the state cancer hospital are from 41 to 70 years of age with an average age of 58.5 years.

SYMPTOMS AND SIGNS

It is extremely unusual for these tumors to remain silent very long although their symptoms follow no specific pattern. Any symptom of which the colon and rectum are capable may be produced by carcinoma. Well over 90 per cent of patients relate some change in bowel habit which should excite the curiosity of the wary physician. This change, if one toward increasing rectal frequency, may, unfortunately, be gratifying and, therefore, misleading to the occasional patient who, after having been troubled with constipation for years, gradually finds that he is able to have several stools daily. Of all symptoms the passage of gross blood per rectum is invariably the commonest and most important and must never be dismissed casually as unimportant by the doctor.

The average period of time elapsing before definitive treatment is carried out, as generally reported, is from nine to twelve months. Here it is somewhat longer. Often this is a result of the patient's procrastination but the fact that about 30 per cent of cases of rectal cancer have had recent prolonged treatment for hemorrhoids and about 15 per cent of patients with right colon cancer have had recent appendectomies indicates that the acuity of medical diagnosis as it pertains to this entity can be improved greatly. The statement has often been made and bears reiteration that 50 per cent of large bowel tumors are diagnosable by digital ex-

amination of the rectum alone since that proportion occurs in this structure (5 to 6 inches in length), and another 25 per cent are accessible to the proctoscope. This leaves only 25 per cent to be diagnosed by the roentgenologist and by barium enema.

In general, systemic symptoms referable to bleeding, sepsis and lumenal obstruction indicate moderate advancement, but by no means present criteria of inoperability. In the last few years several of our most hopeless-appearing cases clinically were demonstrated, after resection and pathologic examination, to have the best prognosis. The observation that right colon tumors are more prone to be complicated by bleeding and left colon tumors by varying degrees of obstruction commonly has been made.

The physical findings have largely to do with the simple palpation of a tumor or its proctoscopic or roentgen ray diagnosis. To the well initiated examiner, carcinoma of the rectum is seldom confused with anything but an occasional peculiar granuloma. Unless one has more than a casual acquaintance with these tumors, it is, therefore, undoubtedly safer to do a biopsy on every accessible lesion which arouses suspicion. The roentgenographic diagnosis of colon carcinoma is usually not difficult for the experienced roentgenologist. Occasional lesions will require all of his acumen. As previously stated, about 25 per cent of all cancers of the large bowel cannot be diagnosed definitely without barium enema. However, barium has little place in the diagnosis of rectal lesions as such, for nothing can replace careful digital examination. On the other hand, every patient with a rectal carcinoma should be suspected of having other lesions, benign or malignant, higher in the bowel.

Grave clinical signs of advanced disease are massive, grossly nodular, hepatic enlargement, marked ascites and roentgenologic evidence of distant metastases. It has been my experience that apart from these, weight loss of 25 or more pounds has an ominous significance and frequently is the only hint of extensive disease, usually hepatic, found later on exploratory laparotomy.

TREATMENT

The treatment of choice for all cancers of the colon and rectum is radical removal and it is toward this purpose that all effort should be directed.

It is easily understandable that patients of this age group are apt to present coincident complicating degenerative diseases of one sort or another which require careful evaluation and maximum correction. In addition to and as a result of carcinoma hypoproteinemia, hemoglobinemia, hypovitaminosis and intestinal obstruction are also commonly found. Emphasis appropriately has been laid, therefore, on the painstaking preoperative preparation of these cases. From five days to one week ordinarily should suffice but, occasionally, much longer periods are necessary. Routinely, high protein, high caloric and high vitamin low residue

diets are employed. Patients with no obstruction are given saline catharsis and colon lavage. Those with complete obstruction will require preliminary decompressive procedures. Preoperative transfusions are often necessary. The Miller-Abbott tube cannot be expected to decompress the colon, but it will be of great aid when the small intestine also is distended. In such cases, it is also of help in the post-operative period.

Having dealt in such a general fashion with preoperative care, I shall consider briefly the operative treatment of cancer of the large bowel. From this standpoint, it is convenient to divide somewhat arbitrarily the large bowel into three parts: the right colon, the lower sigmoid and rectum and everything in between. Numerous procedures have been devised and advocated in dealing with cancer of this structure, but the several to be discussed seem to provide the best combination of radical technic with minimum risk to the patient.

I believe that for resection of the right colon a modification of the Mikulicz principle, as first described by Lahey, is the procedure of choice. This is not strictly a one-stage procedure in that it leaves a temporary ileocolostomy to be extraperitoneally closed as a minor second stage several weeks later. It completely circumvents the dangers of an intraperitoneal anastomosis. It is the safest procedure applicable when severe hemorrhage is taking place.

It is felt, in addition, that there are certain exceptionally poor risk patients in whom the dangers of immediate resection outweigh those of anastomosing ileum to transverse colon as a first stage, and in whom the benefits to be derived from the short-circuiting will considerably diminish the risk of subsequent resection. The inference is intended, therefore, that immediate resection with anastomosis may be discarded as introducing more than necessary risk.

Insofar as the lower sigmoid and the rectum are concerned, the one-stage abdominoperineal resection is certainly the operation of primary choice for the majority of cases. I definitely feel that there does remain a place for the staging of this operation in certain selected patients, particularly those with bulky fixed lesions in whom a considerable inflammatory element is present and who are otherwise poor risks. Exclusion of the lesion from the fecal stream enables one to obtain very definite benefits. Drainage of abscesses, lavage of the bowel segment and small doses of roentgen ray for an interval of several weeks have converted several technically very difficult situations into ones which could be handled with great ease and with less than average trauma. It also has proved very useful in elderly patients with partial obstruction in whom catharsis and lavages have proved incompletely effective but in whom distention has not been such as to require preliminary cecostomy or transverse colostomy. The technic first described by Lahey and later revised by Cattell9 is most satisfactory. Its more frequent employment by the surgeon doing only an occasional rectal resection would probably result in the performance of fewer colostomies or colostomy with subsequent perineal resection.

This latter procedure, credited to Lockhart-Mummery, 10 is less radical in its scope. It involves the removal of a smaller segment of bowel and considerably less node bearing tissue, and presents an occasionally justifiable compromise with the patient's limited ability to tolerate major surgery. Ideally it should be reserved for the extremely poor risk patient with a low-lying early lesion.

The Hartmann operation or anterior resection is justified only as an escape for the surgeon and is applicable only to lesions in the low sigmoid and upper rectum when the patient's poor condition during the abdominal operation renders any further perineal surgery inadvisable. It also is, therefore, a compromise procedure.

For the remainder of the colon, I believe that a modification of the exteriorization resection, as described by Rankin,³ is to be preferred, with mobilization of as much colon as is necessary to secure wide removal of the local lesion and, more important, the adjacent node-bearing tissue. Crushing of the spur may be begun about one week post-operatively and the stoma may be closed extraperitoneally in from six to eight weeks later with re-alignment of all wall layers and consequently without residual ventral herniation.

Transfusion during operation, repeated postoperatively as often as is indicated, and continuous spinal anesthesia have contributed, I believe, to the safety of large bowel resection at the Hospital.

To date the resectability rate has been 66 per cent in 120 cases. The postoperative mortality has been 16 per cent. In only 1.6 per cent was the extent of local disease the reason for inoperability, and in 23 per cent it was necessary to remove some other structure or organ along with the bowel. Palliative resection, admitted as such at the time, was done in 16 per cent. It, therefore, becomes apparent that the limits of operability under present circumstances are being approached rapidly.

PROGNOSIS AND END RESULTS

It will be some time before five year end results can be reported at this hospital and it therefore becomes necessary to draw from the experience of others. Among a group of top-ranking clinics whose operability ranged from 55 to 75 per cent, the over all five-year survivals among resected patients varied from 52 to 63 per cent.

Gabriel¹¹ has reported illuminating results in cancer of the rectum on the basis of degree of advancement when first seen. Of cases with tumor confined to the rectal wall and with negative nodes, more than 90 per cent survived five years; of those with cancer extending outside the rectal wall but with nodes still negative, about 65 per cent survived this same period; of those with or without this extension but with node involvement only about 20

per cent survived. Unfortunately, the per cent of cases in each group was 15 per cent, 36 per cent and 49 per cent respectively.

FUTURE ADVANCES

In consideration of the facts that an average period of from nine to twelve months elapses before proper treatment is instituted, that 30 per cent of rectal cancer and 15 per cent of colon cancer is treated as some other condition in apparent ignorance of the true diagnosis, and that only about 15 per cent of cases are arriving for treatment with disease still confined to the bowel wall, it becomes very apparent that the bulk of future advances must arise largely from earlier diagnosis. What can be accomplished by this is plain, for cancer of the large bowel is not in the same category with cancer of the stomach.

A great deal can be accomplished also by a wider recognition of the relationship which polyps bear to cancer of the bowel. It is difficult to determine how many carcinomas arise from polyps because the development of the malignant tumor may erase all evidence of its benign progenitor. Swinton and Warren¹² give the figure of 14 per cent but this is approximately the incidence of early carcinoma of the colon. The frequent association of polyps and cancer has been noted often and figures range from 11 to 75 per cent. There is fairly uniform agreement, however, on a figure above 50 per cent.^{4, 13, 14, 15}

Polyps are relatively common tumors. In large autopsy series in which they have been sought carefully, an incidence of from 4 to 6 per cent^{14, 15, 16} is generally given with a high figure of 21.5 per cent.¹⁷ The incidence rises with advancing age.

It seems apparent, therefore, that polyps are frequently, if not always, the precursors of cancer of the large bowel and that they are of relatively common occurrence. It naturally follows that all accessible polyps should be removed and that those beyond reach of endoscopic instruments should be followed carefully by barium enema and removed by laparotomy whenever they arouse suspicion.

The outlook for the future results in cancer of the large bowel is consequently good. Operative efforts have been extended about as far as it is practical to go at the present time. It is a great responsibility to see that the possibilities of the future are realized.

SUMMARY

- 1. The course of development of the treatment of cancer of the large bowel has been presented and, of available modern methods, the only one which seems to meet the requirements of this disease is radical surgery.
- 2. The incidence and certain important implications of the clinical setting are discussed.
- 3. The importance of careful preoperative evaluation and care is stressed generally and the surgical treatment is outlined.

- Present day accomplishments by this method are stated and clearly give great promise of future improvement.
- 5. This must come through earlier diagnosis (the possibilities for which are good), and a better understanding of the precancerous role of polyps.

DISCUSSION

L. V. Ackerman, M.D., Pathologist: The question which arises is "Can the pathologist be of any help to the surgeon in the diagnosis and prognosis of malignant tumors of the large bowel?" I will restrict my remarks to carcinomas.

The microscopic diagnosis of carcinoma of the large bowel is usually very simple except in a few rather rare instances. Grossly, there are several things which are of definite importance. The tumor may be very large and grow into the lumen, causing early obstruction. If the tumor grows into the lumen and does not invade the bowel wall, it may produce symptoms early and bring the patient to the doctor at an early rather than a late date. If the tumor infiltrates the bowel wall, obstruction will not occur. and the patient may not reach the physician until relatively late. The prognosis in this second group is much worse than in the bulky growths which do not invade bowel wall. A variable degree of inflammation accompanies carcinomas of the bowel. This inflammation may extend out to the serosa and cause adherence of the bowel to contiguous structures. This happens particularly in carcinoma of the rectum when the tumor apparently is fixed to the prostate or to the posterior wall of the vagina, the bladder or other organs. This fixation may be entirely inflammatory and it is impossible to tell on gross examination whether the induration which is present is tumor or inflammation. In all specimens at this hospital the lymph nodes are carefully dissected and their location plotted on a scale drawing. The number of lymph nodes obtained by this method will vary between fifteen and forty. Grossly, it is difficult to tell, within certain limits, whether a lymph node is involved by tumor or not. If one thinks the lymph node grossly is negative, he stands a high chance of being correct. If, however, the lymph node is large, firm and hard, and he says that it is involved by carcinoma, the chances are about 50 per cent that he is right. Often when the lesion is large and ulcerating and accompanied by considerable inflammation, hyperplasia of the lymph nodes occurs and grossly they resemble metastatic disease very closely. Rarely, gross involvement of large veins by tumor can be noted.

The microscopic examination offers several points of value. Grading is probably of some value. Most of the tumors, however, fall into a fairly large group of moderately differentiated adenocarcinomas. A few of these are very well differentiated and this group as a whole has a good prognosis. On the other hand, there is also a small group which is extremely undifferentiated and in which it is difficult except in a few areas to find any glandular formation. This

group does very poorly. The invasion of muscle makes the prognosis worse and if this invasion extends beyond the muscle to the serosal surface, the prognosis is even worse. Along with this invasion of the muscle, there may be blood vessel invasion. Blood vessel invasion does not occur without muscle invasion. The more extensive the muscle invasion, the greater the chance of blood vessel invasion. This blood vessel invasion occurs in the veins of the submucosa and in the veins of the loose tissue directly overlying the tumor. One must be certain that the tumor is within the veins and special stains to demonstrate muscle or elastic tissue in the wall of the vein are essential. If liver metastases are present, blood vessel invasion will be found in practically every instance. On the other hand, if at least three sections of the tumor are negative for evidence of blood vessel invasion, then the chances of having visceral or bone metastases are relatively slight. About 25 per cent of the cases with blood vessel invasion do not have lymph node involvement. The presence of lymph node metastasis makes the prognosis very much worse, as Dr. Sugarbaker has indicated. The involvement of the lymph nodes usually proceeds in an orderly fashion, although there are pathways which will by-pass groups of lymph nodes. If the tumor is an epidermoid carcinoma of the anus invading the rectum or if it is a carcinoma of the rectum invading the anus, then one must consider the possibility of lymph node metastases in the inguinal region. Nerve involvement occurs in a fairly high percentage of patients and may be accompanied by pain. Usually, if nerve involvement is present, lymph node metastasis or venous invasion will also be present. If there is nerve involvement, then the chances of local recurrence are high and the prognosis in this group is very poor. The more undifferentiated the tumor, the greater the chances of venous, nerve and lymph node involvement.

In conclusion, the patient with a well differentiated tumor located in the mucosa or submucosa will give the best prognosis. Some large exophytic growths may fall in this group. The worse prognosis will be in those patients with a very undifferentiated tumor which invades the muscle wall, extends to the serosa and metastasizes to the lymph nodes, veins and nerves. Therefore, I feel that the careful gross and microscopic examination of all specimens of colon carcinomas should be done and evaluation made from the standpoint of the factors discussed.

DAVID LEMONE, M.D., DIAGNOSTIC ROENTGENOLOGIST: I wish to preface my remarks with the statement that the first obligation of the roentgenologist in the diagnosis of any lesion is a thorough clinical realization of the patient's history and physical condition. With this understanding, the reliability of roentgen diagnosis of carcinoma of the colon approaches 95 per cent.

The preparation of the patient in colon examination is a most important factor and should be exercised judiciously. The choice of procedure must be adequate and is dependent on the patient's general condition and on the lower bowel status; that is, whether or not there is evidence of obstruction, diarrhea or bleeding. In this institution either cathartics, laxatives or enemas are used, varying in the individual case.

The routine method of examination is with barium and water enema. After a careful rectal examination, the barium suspension is instilled slowly with minimal pressure under fluoroscopic control. The patient, of course, must be rotated in various positions to produce adequate visualization. After complete canalization and study, a film is taken and the patient is requested to expel the colon contents. Evacuation films are taken as necessary for study of the mucosal patterns and motility. Double contrast enemas are employed in required cases.

The most definite sign of carcinoma of the colon is a filling defect. The deformity of the bowel varies in size and shape but usually is localized. The defect may be irregular, circumferential or cauliflower in configuration. Another important feature is alteration in the mucosal pattern. Although many factors alter the mucosal architecture, local effacement, thinning or other alteration may be the first indication of a malignant growth. Local loss of haustration is another valuable sign. Spasm is often associated with carcinomatous changes and may alter the roentgen ray picture. As it may be one of the earlier indications of a lesion, or the irritability may greatly alter the true situation, any local spasm must be investigated carefully. Irritability and hypermotility often are observed proximal to the neoplasm as a physiologic disturbance. Dilatation is a late manifestation, occurring after the bowel is decompensated. Motility disturbances may be minimal to marked. Because of this factor, one always must avoid giving barium by mouth in any case in which there is a question of obstruction. A mass is another important diagnostic sign. It is desirable to determine whether the bulk of the mass is intralumenal, mural or extrinsic. It is also of value to ascertain the size of the mass and whether or not it is movable. Occasionally, one may find complications such as an intussusception or a fistula.

In questionable roentgen ray findings, the examination is always repeated. Occasionally, the use of antispasmodics is necessary or a double contrast enema is employed. In some cases, a scout film of the abdomen has been found to be of value, giving an indication of the location of the lesion and thus facilitating the proper procedure and expediting the diagnosis.

It is evident that the patients referred to this institution with clinical manifestations of colon carcinoma usually have had symptoms of the disease for months. Competent roentgenologic study of the colon is an accurate means of diagnosis and should be employed earlier and more frequently.

E. D. BASKETT, M.D., COLUMBIA: What is the best method to use in the care of colostomies?

Dr. Sugarbaker, closing: It is to be emphasized that in speaking of colostomies, differentiation must first be made between the ordinary loop colostomy without resection of the rectal tumor and the end colostomy following abdomino-perineal-rectal resection. The two are in no sense comparable. In the former, the persistence of the neoplasm with its attendant ulceration and infection keeps the bowel in a constant state of reflex irritation. In addition to that, a constant discharge from the lesion is present. These patients are usually quite miserable, and it is this type of colostomy alone which is responsible for the poor reputation acquired by attempts at diverting the fecal stream out on to the abdominal wall. The second mentioned type of colostomy (that remaining after the tumor has been resected) may be handled with a minimum of effort and to the patient's complete satisfaction if the bowel is irrigated every one to three or four days, depending upon the individual's habits. A liberal diet is allowed, excepting that the patient is warned to omit occasional foods which have always produced diarrhea in him. An intelligent patient may be expected to live a perfectly normal life without fear of embarrassing accidents occurring.

BIBLIOGRAPHY

1. Daland, E. M.; Welch, C. E., and Nathanson, I.: One Hundred Untreated Cancers of the Rectum, New England J. Med. 214:451, 1936. 2. Miles, W. E.: Cancer of the Rectum, Harrison, London,

1926.
3. Rankin, F. W.: Resection and Obstruction of the Colon, Surg., Gynec. & Obst. 50:594:598, 1930.
4. Westhues, H.: Die pathologisch-anatomischen Grundlagen der Chirurgie des Rektumkarzinoms, Leipzig, G. Thieme, der Chirurgie page 113, 1934.

der Chirurgie des Rektumkarzinoms, Leipzig, G. Thieme, page 113, 1934.

5. Gabriel, W. B.; Dukes, C., and Bussey, H. J. R.; Lymphatic Spread in Cancer of the Rectum, Brit. J. Surg. 23:394-413, 1935.

6. Gilchrist, R. K., and David, V. C.; Lymphatic Spread of Carcinoma of the Rectum, Ann. Surg. 108:621-642, 1938.

7. Coller, F.; Kay, E., and MacIntyre, R.; Regional Lymphatic Metastases of Carcinoma of the Colon, Ann. Surg. 114:56-67, 1941.

8. Lahey, F.; Carcinoma of the Colon, S. Clin. North America 11:233-244, 1931.

9. Lahey, F., and Cattell, R.; A Two-Stage Abdominoperineal Resection of the Rectum and Recto-sigmoid for Carcinoma, Am. J. Surg. 27:201-213, 1935.

10. Lockhart-Mummery, J. P.; The Prognosis in Rectal Cancer, Lancet 2: 1307, 1926.

11. Gabriel, W. B.; Prognosis in Cancer of the Rectum, Lancet 2:1055-1057, 1111-1112, 1936.

12. Swinton, N. W., and Warren, S.; Polyps of the Colon and Rectum and Their Relationship to Malignancy, J.A.M.A. 113:1927-1933, 1939.

113:1927-1933, 1939.

13. Junghanns, H.: Die Zottengeschwulste des Dichdarms und Mastdarms, Ergebn. d. Chir. u. Orthop. 28:1-71, 1938.

14. Lawrence, J. C.: Gastrointestinal Polyps; Statistical Study of Malignancy Incidence, Am. J. Surg. 31:499-505, 1936.

15. Susman, W.: Polypi Coli, J. Path. & Bact. 35:29-33, 1932.

1932.
16. Stewart, W. J.: Precancerous Lesions of the Alimentary Tract, Lancet 2:669-675, 1931.
17. Feyrter, F.: Zur Lehre von den Polypenbildung in menschlichen Darm, Wien. Med. Wchnschr. 79:338-342, 1929.
18. Seefeld, Philip H., and Bargen, J. Arnold: The Spread of Carcinoma of the Rectum: Invasion of Lymphatics, Veins and Nerves, Ann. Surg. 118:76, 1943.
19. Grinnell, Robert S.: The Lymphatic and Venous Spread of Carcinoma of the Rectum, Ann. Surg. 116:200, 1942.
20. Brown, Clark E., and Warren, Shields: Visceral Metastasis from Rectal Carcinoma, Surg., Gynec and Obst. 66:611, 1938.

Metastasis fr 66:611, 1938.

Reporting a case of identical twin brothers who developed identically complicated duodenal ulcers at the same period of life, Gordon McHardy, M.D., and Donovan C. Browne, M.D., New Orleans, declare in The Journal of the American Medical Association for February 19 that these two cases would seem to confirm the theory of constitutional predisposition.

UNUSUAL CASE OF ARSENICAL DERMATITIS

REPORT OF A CASE

E. P. MONAHAN, M.D. KANSAS CITY, MO.

H. R., male, aged 40, was employed in a vinegar factory.

Chief Complaint.—Itching and burning were the chief complaints. Inspection of the nude body showed a generalized tomato-red blush over the entire body from the neck to the ankles. The first impression was that of a deeply injected capillary reaction. On examination it was seen to be a very fine vesiculative eruption in coalescence.

History.—The patient stated that he had worn a new pair of overalls before they had been laundered. From this, a tentative diagnosis of dye poisoning was made. Further checking brought out a most interesting and unusual point: The employee was engaged in handling bales of dried pumice from which a fine dust filled the air and saturated the clothing. Two days before the eruption appeared, the patient had done two men's work. The room was very hot and he perspired profusely. By the close of the day his clothing had become stiff from the dust and sweat. On the following day he began to itch over the whole body although he did not notice any eruption. The next day the condition described began to appear rapidly.

Treatment.—The patient was given thiosulfate intravenously (0.5 grams, 7½ grains) daily and the same in a 5 per cent solution as a topical wash followed by a nonscented dusting powder. Relief was almost immediate and no other procedure was followed except a liberal application of olive oil after the fourth day. He was dismissed cured in eight days.

A sample of the pumice was secured and analyzed. The test showed a strong qualitative test for arsenic.

This material is the apple peel used in the production of vinegar, and was shipped from a western apple orchard where the fruit is sprayed with lead arsenate from blooming time until the apples are harvested.

Diagnosis.—A diagnosis of arsenical dermatitis seems justified in this case.

311 Argyle Bldg.

"Since the demonstration of the value of the treatment of poliomyelitis described by Miss Elizabeth Kenny," The Journal of the American Medical Association for January 22 says, "studies have been made in an attempt to explain the physiologic and pathologic conditions associated with the observed effects. The adherents of the Kenny theory have asserted that the harm of infantile paralysis is due to 'spasm' of the affected muscles rather than to a flaccid paralysis. Qualified investigators have shown that this is not the case. As stated recently by Stanley Cobb, it is being demonstrated once more in the history of medicine that new and empirical methods of treatment backed by uncritical enthusiasm may produce many cures but much physiologic nonsense. The treatment may be good, but the ex post facto conclusions of the therapeutist are usually bad."

CASE REPORTS OF BARNES HOSPITAL

CLINICAL AND POSTMORTEM RECORDS USED IN WEEKLY
CLINICOPATHOLOGIC CONFERENCES AT BARNES
HOSPITAL, ST. LOUIS

W. BARRY WOOD, JR., M.D., and ROBERT A. MOORE, M.D., Editors

CASE 41

PRESENTATION OF CASE

M. A. R., a 38 year old female school teacher, was admitted to Barnes Hospital for the first time January 30 and discharged February 18, 1940.

Chief Complaints.—High blood pressure, inflammation of the right eye.

Family History.—The patient was unmarried, had been brought up under good circumstances, and had a college education after which she became a teacher of music. She had diphtheria as a child. At 15 a diagnosis of tuberculosis of the right kidney was made and a nephrectomy was done. For years following this operation the patient had had cystitis. From time to time kidney function tests were done with apparently normal results although occasional periods of painful urination and frequency during the day and night occurred. She had had periodic headaches with vomiting about once a month for some years.

Present Illness.—In 1934, during a routine physical examination the patient was told that her blood pressure was 170. No treatment was instituted and she remained in comparatively good health until a few months previous to admission when she noticed gradually increasing shortness of breath on exertion. During the last month, there were a few night attacks of sudden shortness of breath wherein she was compelled to sit up. The attacks lasted as long as two hours. About one month previous to admission, she developed a head cold which persisted. The right eye became very red and she had some difficulty of vision.

Physical Examination.—Temperature was 37.4 C., pulse 130, respiration 24, blood pressure 240/155. The patient was well nourished and developed and in no acute distress. The hair was snow white and there were large patches of light tan pigmentation of the skin. The bulbar conjunctiva of the right eye was edematous with a yellowish discoloration. There was a fresh subconjunctival hemorrhage above the limbus. The pupils showed no abnormalities. Both disks were blurred with very indistinct borders and questionable elevation. There were scattered superficial and deep hemorrhages in the retinae and some patches of exudate. The maculae were not well seen. Marked sclerotic changes of the arteries were noted. The upper and lower respiratory tracts were normal. The thyroid gland was not palpable. The heart was enlarged considerably to the left, the rhythm was regular, there was a systolic murmur at the left of the sternal border and a loud ringing aortic second sound. The abdomen was soft and there were no palpable masses. The reflexes reacted normally.

Laboratory Findings.—Urinalysis: specific gravity 1.008, albumin 3 plus, no casts. Intravenous phenolsulphonphthalein test: 5 per cent return in 15 minutes, 20 per cent in 1 hour and 15 per cent in 2 hours. Nonprotein nitrogen: 36 mg. per cent. Electrocardiogram: low voltage, isoelectric T waves in the first three leads and widening of the Q R S complexes, diagnosed myocardial damage.

Course in Hospital.—Under bed rest, digitalis and local treatment to the right eye, there was some improvement symptomatically but the blood pressure persisted at high levels, averaging 220/145. She was sent home to continue treatment there. When discharged, the nonprotein nitrogen was 36 mg. per cent.

Second Hospital Admission.—April 9 to June 11, 1940.

Interval History.—The patient stated that she had felt fairly comfortable as long as she remained inactive. Two weeks previous to admission, she began to be nauseated. This symptom gradually increased and for the last few days had been associated with vomiting which could not be controlled by medication. During these two weeks she spent most of her time in bed and lost about fifteen pounds. There were no unusual headaches, visual disturbances or urinary symptoms.

Physical Examination.—Temperature was 36.8 C., pulse 100, respiration 24, blood pressure 235/150. The significant changes from the last admission were a noticeable exophthalmos and some lid lag. The conjunctivae appeared normal. There was no notation of fundus examination nor of thyroid enlargement. There was increased dulness and diminished tactile fremitus at the base of the left lung posteriorly where the breath sounds were distant. The heart was enlarged to the left to the midaxillary line. The apex impulse was forceful, the rate was 130, no murmurs were heard. There was an occasional extrasystole and the aortic second sound was loud and ringing. The liver was moderately enlarged but not tender. The abdomen was otherwise normal. No edema was present. The tendon reflexes were hyperactive.

Laboratory Findings.—Blood count: red cells 4,280,000, hemoglobin 85 per cent, white cells 6,000; differential count: basophils 1 per cent, eosinophils 4 per cent, "stab" forms 4 per cent, segmented forms 69 per cent, lymphocytes 14 per cent, monocytes 8 per cent. Urinalysis: specific gravity 1.013, albumin 3 plus, numerous white blood cells, no casts. Blood chemistry: sugar 91 mg. per cent, non-protein nitrogen 71 mg. per cent. Basal metabolic rate: plus 35. Electrocardiogram: isocardial damage or digitalis effect. Intravenous phenolsul-phonphthalein test: 20 per cent excretion in 15 minutes, 20 per cent in 30 minutes.

Course in Hospital.—Vomiting persisted and the patient was given intravenous and subcutaneous fluids at frequent intervals. Within one week she developed peripheral edema. She became short of breath on slight exertion and fluid at the left base posteriorly persisted. Because of the high meta-

bolic rate, Lugol's solution was given with no appreciable effect symptomatically. On April 20, the blood nonprotein nitrogen was 120 mg, per cent and the CO₂ combining power 49.5 volumes per cent. The red blood cells dropped to 3,200,000. Nausea and vomiting continued with progressive loss of weight. She gradually became mentally obtunded and then semicomatose. Respirations grew more labored. The heart rate remained rapid and a gallop rhythm developed. The liver enlarged to three finger breadths below the right costal margin and moderate ascites appeared. Ophthalmologic examination revealed marked arteriosclerosis, retinal exudates and hemorrhages about one week before death. A few days prior to death, a pleural friction rub appeared at the right base posteriorly and there were moist rales at both bases; the breath was uremic. A purplish maculopapular eruption appeared first at the old incisional scar over the right kidney and spread over the body. The last few days, edema of the legs and face became marked, respirations were increasingly labored and finally anuria developed and the patient died in coma.

CLINICAL DISCUSSION

DR. HARRY ALEXANDER: This patient evidently died from the effects of cardiovascular renal disease. However, the case record brings up a number of very interesting points. To begin with, the patient's father died at 66 of high blood pressure. It is known that hypertension is apt to run in families. Does anyone know the statistics?

DR. EDWARD MASSIE: There is a paper from the Mayo Clinic by Hines on this point. He showed that the incidence of familial hypertension was extremely high—perhaps around 60 per cent. He also included hyperreactors of a cold pressure test, and for this his figure was about 70 per cent. I think the paper appeared either in the American Heart Journal or the Annals of Internal Medicine within the last year.

DR. ALEXANDER: This patient at the age of 15 had a nephrectomy, presumably because of a tuberculous kidney. Her high blood pressure was first discovered in 1934, which was considerably later. The question arises as to the possible relation between the nephrectomy and the hypertension. This of course relates to the so-called "Goldblatt experiment" in which hypertension is produced in dogs by injuring the kidney. Dr. Bulger, would you say, from your clinical experience, that reduced renal tissue is relevant to hypertension?

Dr. Harold Bulger: It has been recognized for years that in kidney insufficiency, where there is a tendency to elevated nonprotein nitrogen, hypertension is common.

DR. ALEXANDER: This patient's history stated that even after removal of the kidney she had cystitis, painful urination and frequency for some time. It may be assumed that the remaining kidney was impaired. Is it damage to the kidney or reduction in kidney substance that is related to hypertension, Dr. Bulger?

Dr. Bulger: Studies have shown that reduction of kidney substance in animals tended to raise the blood pressure.

Dr. W. Barry Wood: Injury to the kidney is the important factor because if such an abnormal kidney is removed the blood pressure may return to normal.

Dr. Alexander: Yes. I believe it has been shown in dogs that hypertension is not nearly so apt to occur in simple reduction of the kidney mass as in actual damage to the kidney. In this instance, the possibility presents itself that the remaining kidney may have

already been damaged to such an extent as to induce hypertension. Whether or not the Goldblatt experiment is applicable to man as well as to dogs is as yet uncertain. There was a great deal of enthusiam for some time for taking out the damaged kidney in cases of hypertension, but the results have been indefinite. The question is still open. This patient, on her first examination, showed some very significant changes in her eyegrounds: narrowed arteries, sclerotic arteries, a marked degree of hypertensive retinopathy, blurred disks, hemorrhages and exudates. Dr. Bulger, do you believe that there is a specific lesion of the eyegrounds in malignant hypertension, or do you think that they would show the same picture as in advanced chronic glomerulonephritis?

Dr. Bulger: I am inclined to think that the chief difference is made by the degree of hypertension. Dr. Alexander: Dr. Massie, do you agree?

Dr. Massie: I would say that there is no classical picture of the eyegrounds in chronic nephritis. What one sees in the eyegrounds is the result of vascular disease or, more specifically, hypertension. Patients with nephritis without hypertension rarely have eyeground changes. The changes in this patient's eyegrounds must be the result of vascular disease, not of simple glomerular damage.

Dr. Alexander: The changes that are present in malignant hypertension are, I believe, sometimes indistinguishable from those in some advanced cases of nephritis which, as a rule, do not give the degree of hypertension that malignant hypertension does. Is this

correct, Dr. Massie?

Dr. Massie: The blood pressure of 250/155 is what one would expect in malignant hypertension. Chronic nephritis with secondary hypertension can, but rarely does, produce such a degree of blood pressure elevation. If I were given this description of eyegrounds I would feel that there must be a high degree of elevation of blood pressure. Uremia alone does not often result in this eyeground picture in my experience.

Dr. Alexander: What about a patient with a nephrotic syndrome, with a marked albuminuria and anemia?

Dr. Massie: That brings in another factor. In the terminal stages of nephritis with uremia and severe anemia there are hemorrhages in the retina, but not

the severe vascular changes described in this case.

DR. Alexander: This patient left the hospital and came in a second time when her nonprotein nitrogen had risen from 36 mg. per cent to 71 mg. per cent; on April 20 it was 120 mg. per cent. The striking changes on her second admission were a noticeable exophthalmos and lid lag. Dr. Haynes at Duke described this change in 1909 as the "nephritic stare." Not over 40 per cent of patients with glomerulonephritis and uremia in his clinic showed eye signs.

Dr. Carl Moore: There are other names for this condition which interest me. In 1915 Reisman called this "nongoitrous thyrotoxic hypertension." Mannenberg described "high pressure tachycardia" which produced exophthalmos and basal metabolic rates as high as plus 60 with no disturbance of thyroid function.

DR. ALEXANDER: Does not hypertension alone, without uremia, produce exophthalmos, Dr. Massie?

Dr. Massie: I believe so.

Dr. Alexander: Do you think, Dr. Wood, that the elevated basal rate of plus 35 was caused by cardiac decompensation?

Dr. Wood: It is a factor which must be considered. Dr. ALEXANDER: That is a rather high basal rate for the degree of decompensation that this patient had. She had no fever, although she had moisture in her chest and a large liver. Dr. Massie, have you any comment?

Dr. Massie: Plus 35 is high for cardiac failure alone, but patients with malignant hypertension in the absence of cardiac failure may run a somewhat elevated basal metabolism. That factor, plus cardiac failure, could account for plus 35. It is my understanding that the vascular changes, the renal ischemia and the increased angiotonin in the blood cause the elevated metabolism in hypertension, although I do not know a great deal about this phase of the subject.

Dr. Alexander: In cardiac failure per se the basal metabolic rate has been reported as being from 10 to 15 plus-not very high. We have observed patients in this hospital, however, with very high blood pressure and not very marked cardiac failure who had plus 35, plus 40 and even up to plus 50. The question arose as to whether thyroidectomy would benefit these patients. Some of them were given Lugol's solution without any result.

Dr. Carl Moore: Boothby and Sandiford studied 170 patients with essential hypertension. Of these, 3.4 per cent had basal metabolic rates above plus 20, and went as high as plus 60 without signs of decompensation as far as they could recognize.

Dr. Alexander: This patient was given Lugol's solution but, because of her condition, repeated metabolism tests were not done. Dr. Massie, in the very beginning she came in because of paroxysmal nocturnal dyspnea. Do you think that is a grave sign?

Dr. Massie: Paroxysmal nocturnal dyspnea of an organic type is a dire sign and carries bad prognostic

significance.

Dr. Alexander: Would you call this "cardiac asthma"? Dr. Massie: Yes. Cardiac asthma is just a more

severe degree of the same thing.

Dr. Alexander: It is wheezing dyspnea instead of just dyspnea. May these symptoms occur as the first manifestation of cardiac decompensation? And when they occur as the first manifestation, is the disease very advanced?

Dr. Massie: Yes. Recently I saw a patient whose first manifestation was paroxysmal dyspnea, and it continued until he was digitalized. He had no other signs. I think it portends a severe degree of decompensation.

Dr. Alexander: In what other cardiac conditions be-

sides hypertension may this occur?

Dr. Massie: It may occur as the first sign of acute coronary occlusion.

DR. ALEXANDER: What about syphilitic heart disease? Dr. Massie: With aortic insufficiency it is common. Dr. Alexander: What about rheumatic heart disease?

Dr. Massie: It is less common, but it may occur. It is not as bad a prognostic sign in this disease.

DR. ALEXANDER: If you were called in the night to see such a patient, how would you treat that patient as an emergency?

DR. MASSIE: The first thought would be to give morphine, and along with that I would see if there was much free fluid. I would percuss the patient and if there was flattening I would consider an immediate thoracentesis -in the hospital probably.

Dr. Alexander: Then would you digitalize him? Dr. Massie: Yes, but that would be of secondary importance in an emergency treatment.

DR. ALEXANDER: Is digitalis a fairly specific drug for

the prevention of further attacks?

DR. MASSIE: Yes, it is indicated. I did not mean to minimize its importance but merely to point out that morphine is the first thing to think of in an emergency.

Dr. Wood: Are there not some other things you might do, such as phlebotomy, either bloodless or with a needle? I would put tourniquets on all extremities, and then let that blood off gradually. The situation which you describe seems to me to be ideal for such treatment. I think Dr. Massie has made an important point in that the first thing to be thought of should be morphine.

Dr. Alexander: This patient developed edema, ascites and fluid in the chest. Dr. Massie, do you feel that this

is cardiac decompensation or renal edema?

Dr. Massie: In view of the entire picture—history, examination and electrocardiogram-I think that the primary factor is cardiac failure.

DR. ALEXANDER: Is it cardiac failure because of the high blood pressure? The heart adjusts itself to these

changes if they are not too abrupt. Do you suspect that the sudden change in this patient's blood pressure did something to the heart?

Dr. Massie: I do not think we need to presuppose an acute accident to the heart. With progressive cardiac failure in a patient who has had a marked degree of myocardial degeneration, sudden acute myocardial dilatation gives this result.

Dr. ALEXANDER: Were you impressed with the size

of the heart?

DR. MASSIE: Yes. I think it is a good deal enlarged. DR. Wood: The enlarged liver is important too, is it not?

DR. MASSIE: Yes, I think this was cardiac decompensa-

tion and not renal edema.

DR. WOOD: What about edema of the face in cardiac

DR. MASSIE: That is a difficult factor to evaluate.

DR. Wood: I think that the evidence suggests that both factors were present, cardiac failure and renal edema.

Dr. Massie: This patient developed anuria and that indicates that the edema is partly renal in origin.

Dr. Alexander: She developed purpura and a prolonged prothrombin time. Dr. Moore, have you any

comment to make on these points?

DR. CARL MOORE: I imagine that the most important factor was the uninary retention. Purpura frequently is associated with uremia, and frequently results from capillary damage. I think a low prothrombin time is more often associated with frank hemorrhage than with purpura, but it would make an existing purpura more severe.

Dr. Alexander: With terminal uremia one expects a pericardial friction rub, but none was noted here. The patient died characteristically in uremia-there were no convulsions although there was anuria. Perhaps we may speculate as to what these kidneys will show. This patient had had hypertension for at least six years before death. If this were a continuous process one would expect to find changes in the kidney. Is that correct, Dr. Massie? What do you think the kidneys will show?

Dr. Massie: If this is uncomplicated malignant hypertension (there was a history of tuberculosis on the other side), the kidney should show subcapsular hemorrhages, glomerular change and tubular change. There should be marked endarteritis.

DR. ALEXANDER: Could you distinguish between the kidneys of a patient with hypertension of several years duration and those of a patient with acute malignant hypertension? This patient apparently had both.

DR. MASSIE: There usually is a differential feature. There probably will be a good deal more endarteritis in this condition than in ordinary vascular nephritis.

DR. ALEXANDER: In ordinary vascular nephritis there is a contracted kidney, the capsule is adherent and strips poorly and the glomeruli show what?

Dr. Massie: Some scarring.

DR. ALEXANDER: Hyalinization, thickened membrane, fibrosis?

Dr. Massie: Yes.

DR. ALEXANDER: And the arterioles are thickened. What is the difference between that and the malignant form? Is it a matter of degree?

Dr. Massie: I think it is a matter of degree, and of more subcapsular hemorrhages in the kidney

DR. Wood: And necrosis of the arterial walls in the acute form.

Dr. Alexander: You think we may find contraction of the kidney of the chronic type, with superimposed arteriolitis of the kidney? Are there any other comments?

Dr. Barrett Taussig: This patient had recurrent attacks of cystitis following the nephrectomy, and in many cases of chronic pyelonephritis the only symptoms are recurrent attacks of cystitis. It is not impossible that the primary lesion is a chronic pyelonephritis, although it is rather far-fetched.

DR. ALEXANDER: That is a suggestion that certainly must be considered.

Dr. Wood: Dr. Alexander, do you think the patient

had pyelonephritis or nephrosclerosis?

Dr. Alexander: I feel strongly that this patient had so-called nephroclerosis, and that this was probably based on a long standing hypertension.

DR. ALEXANDER'S DIAGNOSIS

Malignant nephrosclerosis.

CLINICAL DIAGNOSIS

Malignant hypertension.

Glomerulonephritis, right kidney.

Uremia.

Bronchopneumonia.

Vitiligo.

ANATOMIC DIAGNOSIS

Tuberculous pyelonephritis, left.

Tuberculous ureteritis.

Partial constriction of right renal artery by tuberculous lymph node.

Arteriolar nephrosclerosis with necrosis of arterioles.

Hypertrophy and dilatation of the heart.

Chronic passive congestion of liver, lungs and spleen. Acute serofibrinous pleurisy.

Acute fibrinous pericarditis.

PATHOLOGIC DISCUSSION

Dr. Margaret Smith: The question arises as to whether or not there was any relation between the hypertension and the tuberculous pyelonephritis, both of which were present in this patient. Weiss and Parker, in their study of hypertension in association with chronic pyelonephritis, mention the rarity of hypertension with renal tuberculosis. In a group of thirty cases of tuberculosis of the kidney they observed hypertension in only three instances and in these chronic pyogenic pyelonephritis was also present. It seems that tuberculous pyelonephritis alone cannot be considered of importance as a cause of hypertension. Since twenty-three years had elapsed since the removal of the right kidney it does not appear probable that the condition present in that kidney could have played a part in the development of hypertension which was first observed only six years before the patient's death.

There was an arteriosclerotic plaque in the orifice of the left renal artery and also a tuberculous lymph node lying against the artery, either of which might be considered as a cause of narrowing of the arterial lumen. However, sections of the lymph node show the inflammatory process to be of fairly recent origin and it is extremely unlikely that this node could have compressed the arterial wall more than four years before

the patient's death.

The degree of narrowing of the artery produced by the arterial sclerotic plaque was questionable.

When uremia develops in experimental hypertension, necrosis of the arterioles, which was present in this patient, does not occur in the kidney in which the blood flow has been reduced by compression of the artery. Thus there is no satisfactory evidence pointing to any etiologic factor for the hypertension which was present in this individual.

CASE 42

PRESENTATION OF CASE

D. D., a 50 year old white laborer, entered Barnes Hospital on the Surgical Service on July 10 and died July 31, 1940.

Chief Complaints.—Abdominal pain, nausea and vomiting.

Family History.—The patient's father and one

brother had diabetes; one sister had gallbladder disease; his wife had syphilis.

Past History.—The only significant illness was diabetes, discovered six years previous to admission during a routine examination. It apparently was controlled fairly well by diet without insulin until the last month or two when sugar in the urine became pronounced. The social history was not recorded and the systemic history not significant.

Present Illness.-About two years previous to admission, the patient developed sudden severe pain in the right upper abdomen which lasted twenty-four hours. No vomiting or jaundice occurred then. Two months later he suffered a similar attack. During the following year there were four subsequent similar attacks. On July 4, 1939, another attack occurred and he entered a hospital in Memphis where oral cholecystograms were done and a nonfunctioning gallbladder without evidence of stones was discovered. Medication was prescribed and during the following year five further attacks occurred. Six weeks previous to admission, sudden severe pain in the right upper quadrant again appeared and on this occasion there was jaundice which lasted for one week; the pain lasted for three days. Three weeks later (three weeks previous to admission) the patient suffered another severe attack accompanied by pain and jaundice which cleared in a few days. The pain became a dull, constant ache which persisted until admission. For two weeks vomiting had been persistent and the patient had retained but little food or fluid. During this period he lost a great deal of weight and became weak. During the week previous to admission, pain appeared in the left flank and remained localized there, gradually increasing in severity. At no time were tarry or clay-colored stools noted although following calomel medication they were described as light yellow. No hematuria, frequency or diarrhea had occurred.

Physical Examination.—Temperature was 38.5 C., pulse 100, respiration 28, blood pressure 132/78. The patient was somewhat obese and appeared to be acutely ill. The skin was warm and moist and no evidence of icterus was present. He was somewhat confused, spoke slowly and answered questions hesitatingly although he was oriented as to time and place. The pupils were small but reacted; the sclerae were questionably icteric. Several teeth were carious; the tongue was very dry and coated; the pharynx was red and crusted with dried mucus. The thorax was somewhat barrel-shaped. Respirations were deep, rapid and mainly abdominal in type. The lungs were hyperresonant to percussion; no rales were heard. The heart was difficult to outline because of a pulmonary hyperresonance. The rhythm was regular, the rate 100; no murmurs or accentuations were heard; the sounds were somewhat distant. The abdomen was a little distended but there was bulging in the flanks, especially on the left. Diffuse tenderness appeared throughout, greatest on the left side, both anteriorly and posteriorly. In the left upper quadrant was a firm mass which descended on inspiration and appeared to be the spleen. The liver was not palpable. Behind the spleen was a sense of resistance and marked tenderness. On rectal examination the prostate was found to be slightly enlarged, firm but not tender. No abnormality was detected in the culdesac. Many chigger or tick bites appeared over both tibiae.

Laboratory Finding.—Blood count: red cells 4,-500,000, hemoglobin 80 per cent, white cells 26,300; differential: juvenile forms 2 per cent, "stab" forms 38 per cent, segmented forms 50 per cent, lymphocytes 8 per cent. Urinalysis: sugar 4 plus, acetone 4 plus, many white blood cells. Blood chemistry: nonprotein nitrogen 42 mg. per cent, sugar 470 mg. per cent, icterus index 42.5, CO₂ combining power 76 volumes per cent; chlorides 525 mg. per cent. Kahn reaction was negative. Roentgenograms: open film of the abdomen was indeterminate. Films of the chest showed elevation of both leaves of the diaphragm and peribronchial infiltration of both lower lungs. Intravenous pyelograms were indeterminate. Vomitus guaiac 1 plus, yeast-like organisms seen.

Course in Hospital.—Under intravenous glucose and insulin therapy the blood sugar dropped to 221 mg. per cent; the urine showed no sugar and but 1 plus acetone. For the first few days the patient's temperature remained elevated; on July 15 it attained 39.2 C., and the pulse rate was 120. At that time there was splinting of the lower left chest with impaired percussion note. The diaphragm on that side descended but slightly. The abdomen was distended and revealed increasing tenderness over the entire left side. Tenderness was exquisite in the left flank where the skin was hot but not reddened. The following day an operation was performed through a left flank incision. In the region of the retroperitoneal fat, there was an escape of foul smelling pus in considerable quantity. The abscess cavity extended down into the pelvis rather than upward and seemed to be walled off. Drainage was established and the incision closed. A small piece of necrotic material was sent to the Surgical Pathological Laboratory. It revealed marked inflammation with acute inflammatory cells. There were numerous areas of fat necrosis. The patient appeared to be improved the following day. Two days later, edema of the feet, sacrum and hands appeared. Total blood proteins then were found to be 4.1 grams per cent with albumin 2.2 and globulin 1.9. The blood nonprotein nitrogen was 21 mg. per cent, sugar 106 mg. per cent and amylase 120 units. On July 22, the patient, who remained edematous, began to vomit. The abdomen was quite distended with diffuse tenderness, particularly in the epigastrium and left lower quadrant. A tender mass could be palpated in each location. He was re-explored on July 23 through the original incision and nothing was detected under the left diaphragm or about the left kidney. A very large abscess which was found in the pelvis was not draining. Further adequate drains were put in place and the wound

closed. For the next two days the patient was slightly improved in that he stopped vomiting. A large decubitus ulcer appeared over the sacrum. He was fed large amounts of protein through a nasal catheter, following which the total blood proteins reached 6.2 grams per cent and edema became less. Transfusions were given as well as infusions of glucose covered by insulin. On July 30, the patient complained of severe pain in the right abdomen and there was marked tenderness and muscle guard in both right quadrants. Slight jaundice was present. The following day the epigastric and suprapubic regions were tender and rigid. Drainage of the pelvic abscess was not satisfactory. On July 31, a right rectus incision was made and, when the peritoneum was opened, approximately two liters of bile escaped. Exploration revealed a small inflammatory mass in the region of the gallbladder but actually the gallbladder could not be felt. The pelvis revealed nothing abnormal nor did the upper abdomen, particularly on the left side, present any new findings. At this point the patient's condition became too critical to explore further and the wound was closed. He expired suddenly a few hours later. On that day his fasting blood sugar was 163 mg, per cent and nonprotein nitrogen 36 mg. per cent. Culture of the peritoneal fluid taken at the second operation showed E. coli.

CLINICAL DISCUSSION

DR. HARRY ALEXANDER: In this case I presume it is fair to assume that the attacks of abdominal pain for two years previous to death were probably manifestations of gallstone colic. If that is agreed upon, the problem is to account for the abscess in the left flank, the large spleen and the bile peritonitis. We might take these in order. Dr. Harford, what do you believe is the origin of the abscess in the left flank?

Dr. Carl Harford: It could result from a suppurative

DR. ALEXANDER: What points support this?

Dr. Harford: The fact that fat necrosis was observed. DR. ALEXANDER: Yes, that is very important. This fat necrosis occurred around the retroperitoneal fat, and that is where fat necrosis is to be expected in pancreatitis. What else would favor pancreatitis as a diagnosis?

Dr. Edward Massie: The fact that gallbladder disease

is present.

DR. ALEXANDER: Yes. In acute pancreatitis there is disease of the biliary passages in most cases-in from 70 to 80 per cent I believe. This patient had persistent vomiting for several days and persistent, constant pain in the abdomen. Dr. Harford, can you tell us how acute pancreatitis develops in gallbladder disease?

Dr. Harford: One theory is that gall stones may get into the pancreatic duct and produce an obstructive pancreatitis. There is some doubt about whether this

actually happens.

DR. ALEXANDER: I believe stones need not get into the pancreatic duct. They may be at the ampulla of Vater. Presumably trypsinogen is activated, autodigestion takes place and steapsinogen is activated and digests fat cells. Are you acquainted with the validity of that theory?

DR. W. BARRY WOOD: Dr. Opie described the first case in which a stone was actually found at the ampulla of Vater at autopsy, the patient having had acute pancre-

DR. ALEXANDER: I believe since that time investigators have injected bile experimentally into the pancreatic duct without producing pancreatitis. If it cannot be regularly produced, there is no explanation for the frequent association of acute pancreatitis and cholecystitis.

DR. Wood: The experiments you cite may not be valid because they do not include obstruction.

Dr. Alexander: I do not know whether there was obstruction or not in those experiments. But I do know that the theory Dr. Harford mentioned is not considered valid for the cause of pancreatitis in gallbladder disease. Rich believes that obstruction takes place because of hyperplasia of the duct of Wirsung.

DR. EDWARD REINHARD: Could this patient have had repeated attacks of acute pancreatitis in the past-in other words, could the disease be primarily pancre-

atitis and secondarily gallbladder disease?

DR. ALEXANDER: You feel that this disease may have begun with a pancreatitis? That would be in keeping with Rich's theory that in pancreatitis the duct occludes. Do you think the cholelithiasis was incidental, or would that be part of the picture? Does one observe attacks of pancreatitis?

DR. HAROLD SCHEFF: Frequent attacks of upper abdominal pain usually rule out pancreatitis as a diagnosis. They usually are caused by gallbladder disease.

DR. REINHARD: Repeated attacks are rare, but they

have been reported.

Dr. Alexander: Dr. Olmsted, what comment do you

make on this?

DR. WILLIAM H. OLMSTED: The clinical course of this disease would suggest that the patient had repeated attacks of gallbladder colic and, when the intermittent pain became steady, that pancreatitis had developed.

Dr. Alexander: It was your and Dr. Harford's impression that he had many attacks of gallbladder colic

and, at the end, acute pancreatitis?

DR. OLMSTED: Yes. Probably preceding his entrance into the hospital.

Dr. Alexander: How do you account for the abscess

in the left flank?

DR. OLMSTED: It is possible that he had a suppurating pancreatitis. If he had had a gallbladder colic for many years, with a chronic infection of the common duct and perhaps stones in it, one could see how he would have a chance to get a pancreatic infection.

Dr. Bertrand Glassberg: What about the blood amylase in pancreatitis? I would expect it to be much

higher than 120.

Dr. Alexander: It was taken after about two weeks of hospitalization. I believe that in acute pancreatitis there is an initial high amylase but that it falls off very quickly. Is that correct, Dr. Bulger?

Dr. Harold Bulger: Yes. In fact, after repeated attacks of pancreatitis one might expect it to be even

lower.

Dr. Alexander: Let us attempt to date this pancreatitis. Either it occurred within the last week, or it was chronic. The only thing that changed in the patient's history was an exaggeration of his early symptoms, and this exaggeration occurred in the last week or two. It would seem that his pancreatitis was of one or two weeks' duration. If this is suppurative pancreatitis, that is very rare. Acute pancreatitis or gangrenous pancreatitis occurs more often, but acute sup-purative pancreatitis occurs in only 5 per cent of all cases of acute pancreatitis, which in itself is not common. However, this man was an uncontrolled diabetic patient and pancreatitis might therefore be a little more probable. This diagnosis would explain the abscess.

Dr. Llewellyn Sale: He could have had a bacteremia and a perisplenic abscess from invasion of the spleen

through the blood stream.

Dr. Alexander: Yes, this might have been a metastat-

ic splenic abscess.

DR. SALE: What method was used to determine the amylase? Dr. ALEXANDER: The Somogyi method. Is splenic

abscess very uncommon, Dr. Sale?

Dr. Sale: It is uncommon, but it does occur.

DR. ALEXANDER: If it does occur, it should be mentioned. This is an unusual case. Are there other suggestions?

Dr. Massie: Could he have had a ruptured gallbladder?

DR. ALEXANDER: If he had a ruptured gallbladder, it would be difficult to explain an abscess in the retroperitoneal space on the left side and the gallbladder is far from the retroperitoneal space. Moreover, ruptured gallbladder is very unusual. It may rupture and form a fistula, but seldom does it rupture into the peritoneal

Dr. Massie: I would like to suggest a rupture of the

intestinal tract at some point.

DR. ALEXANDER: This patient may have had a ruptured colon at the splenic flexure. Colon bacilli were found in the pus. There was a great deal of pus, which would form if the colon ruptured. What would be the What would be the mechanism of such a rupture?

DR. MASSIE: In this part it would have to be secondary to another lesion. I was thinking of it as a complication of a suppurative lesion in the intestinal

tract.

Dr. Alexander: An ulcerative colitis or a carcinoma? Dr. Massie: Or an abscess involving the intestinal

wall, from the suppurative pancreatitis.

Dr. Alexander: Yes, the transverse colon overlies the pancreas, approximately. The abscess may have come from there. That is a valid suggestion. Are there any other suggestions?

Dr. Bulger: Pancreatic lithiasis might be considered. In this condition there are repeated attacks of acute abdominal pain that might simulate gallbladder pain. I never heard of a case causing an acute pancreatitis,

however.

DR. ALEXANDER: About 50 per cent of individuals have an accessory duct-the duct of Santorini. This patient would have had to be one of the unfortunate half who have no other outlet. Your suggestion is that there is a stone in the main pancreatic duct?

Dr. Bulger: I was not considering it seriously. You were saying that the gallbladder does not rupture very often-actually there are large gall stones that rupture into the gastrointestinal tract or posterior to the liver, resulting in a foreign body and abscess formation.

DR. ALEXANDER: I meant to imply that rupture of the gallbladder into the peritoneal cavity itself is extremely rare. Fistulae from stones rupturing into the duodenum, colon or stomach are not uncommon.

DR. BULGER: Is this fat necrosis absolute evidence of

pancreatic disease?

Dr. Alexander: Not absolute but presumptive evidence. With acute suppurative process one might see fat necrosis. Must there be pancreatic steapsin to produce true fat necrosis, Dr. Smith?

Dr. Margaret Smith: Yes.

DR. ALEXANDER: To recapitulate, this man had gall stones probably, and then developed a suppurative pancreatitis. Dr. Sale, are there any other possibilities?

Dr. Sale: If you consider a lesion not connected with

the biliary tract—diverticulitis.

DR. ALEXANDER: Yes, that would not be part of the general picture but would account for some of it. What about the large spleen?

DR. CARL MOORE: It might be the result of the infec-

Dr. Alexander: Yes, an acute splenic tumor.

Dr. Sale: He may have had thrombosis of the splenic vein.

Dr. Alexander: The splenic vein was bathed in the abscess at that site, and I think it is quite possible that he had a thrombosis of the splenic vein, giving him a large spleen.

DR. M. GOLDMAN: How about the bile in the peritoneal

cavity?

Dr. Alexander: Do you believe it was from a stone which ruptured through the gallbladder wall?

DR. GOLDMAN: Yes. Such a thing is rare, but still there

was certainly a rupture of the biliary passage to get two liters of bile.

Dr. Harold Scheff: Gangrene of the gallbladder could have ruptured into the peritoneal cavity.

Dr. Alexander: In a process that was present for two years there must have been many adhesions, and it is difficult to think that a gangrenous gallbladder would go through all those adhesions and then rupture into the peritoneum. Any other possibilities?

Dr. Bulger: A common cause of bile peritonitis is rupture of bile capillaries on the surface of the liver -I believe through the capsule. There has to be a

localized obstruction of the bile passages.

DR. ALEXANDER: The patient would have been very jaundiced in that case. We are only assuming a rupture of the gallbladder. Rupture of the common duct is less frequent, but could he have had a fistula, Dr. Wood? Dr. Wood: I think it is possible that a fistula could

have developed from the common bile duct and eroded

into the pancreas.

DR. ALEXANDER: But there should be a stone in the common duct to do that, and there is no evidence of a

stone.

Dr. Wood: He had symptoms of gall stones all along, and may have had one in the common duct at that time. The jaundice which was present cleared up at the time the pain developed, suggesting passage of an obstructing stone.

DR. ALEXANDER: This is a very bizarre, difficult and complicated situation. Is it the feeling of most of you that the patient had gall stones and pancreatitis? That seems the most probable diagnosis. There may have been suppurative pancreatitis. Where the rupture of the biliary tract occurred, I do not know. Gallbladder rupture, although a rare event, seems the most likely

Dr. Goldman: How about a carcinoma of the gallblad-

der rupturing?

DR. ALEXANDER: That is a good suggestion, but at the last operation the gallbladder area was explored and nothing but a small mass was found. Carcinoma would

surely have been detected.

STUDENT: Could this man have had symptoms of peritonitis on the basis of obstruction of the intestinal tract? He may have had perforation of the gallbladder by a large stone forming a tract into some part of the in-testinal tract. It says in Christopher that if such a stone is impeded in its progress, it is prone to perforate at that point, which might account for the abscess.

Dr. Alexander: That is a good suggestion. marize, I would say that this patient had gall stones, suppurative pancreatitis and rupture of the biliary tract into the peritoneal cavity and, probably, throm-

bosis of the splenic vein.

DR. ALEXANDER'S DIAGNOSIS

Gall stones. Suppurative pancreatitis. Rupture of the gallbladder. Thrombosis of the splenic vein.

CLINICAL DIAGNOSIS

Acute cholecystitis. Diabetes mellitus. Abscess, retroperitoneal. Abscess, pelvic, secondary Ruptured abdominal viscus. ? Necrotizing pancreatitis. Peritonitis, acute, general.

ANATOMIC DIAGNOSIS

Chronic cholecystitis. Cholelithiasis.

Cholangitis with periportal fibrosis of liver, slight. Acute hemorrhagic necrosis of the pancreas, with abscess formation in the lesser omental sac and the left retroperitoneal region (sequestration of the pancreas).

Fat necrosis of the greater omentum, the mesentery, the gastrosplenic ligament and the appendices epiploicae of the descending colon.

Thrombosis of the portal vein, splenic vein and the left coronary vein of the stomach.

Small biliary calculus in the ampulla of Vater obstructing the common bile duct and pancreatic duct.

Perforation of the gallbladder.

Bile-tinged serous peritonitis, right side (1,000 cc. estimated).

PATHOLOGIC DISCUSSION

DR. MARGARET SMITH: The inflammatory process in the gallbladder and bile ducts was associated with considerable fibrosis indicating its long duration. Many small gall stones were present in the gallbladder and one stone measuring only 4 by 6 millimeters in diameter was lodged in the ampulla of Vater. Because of the small size of the stone it may have acted as a ball valve. The pancreatic duct entered the ampulla just proximal to the small stone. It was therefore possible for bile in the obstructed common duct to enter the pancreatic duct. Although experimental pancreatic necrosis does not result from the injection of bile into the pancreatic duct it is possible that infected bile or bile mixed with regurgitated duodenal contents may do so. The reaction about the necrotic pancreas is compatible with a process of several weeks' duration. The gallbladder wall was necrotic only immediately about the small perforation. It is likely that the necrosis and resultant perforation were caused by a localized area of infection in the wall of the gallbladder. The active character of the infection in the biliary system is indicated in sections of the liver by many polymorphonuclear leukocytes present in and about the small bile ducts.

CLINICAL NOTES

ORIGINAL PRESSURE POINT TECHNIC FOR INSERTION OF THE CAUDAL NEEDLE

J. ROY COMPTON, M.D.

ST. LOUIS

The first attempt of the injection of an anesthetic solution for surgical purposes into the extradural space of the sacral segment of the vertebral canal was made by Cathlin in 1900 shortly after he described the method which now is known by his name or as "epidural sacral anesthesia." This consists of the injection of the anesthetic solution into the sacral canal through the sacral hiatus.

The method of Cathlin did not at first have many followers and only after the work of Lawen in 1910 did it acquire much popularity. It merits wider recognition and use. The motive which has favored this form of anesthesia has been the avoidance of diffusion of the anesthetic solution in the dural sac, thus eliminating a series of disturbances which frequently follow subarachnoid spinal anesthesia. The method, in fact, gives the best form of anesthesia for sacral and pudendal plexuses and constitutes one of the most precise methods for regional anesthesia of the sacroperineal region.

The anatomy is well known. Briefly, in early embryonic life the spinal cord extends to the end of the coccyx. Its growth in length, however, ceases

to keep pace with that of the vertebral column and because it must remain attached to the brain, its lower end is drawn up to the level of the third lumbar vertebra at birth, and to the second lumbar vertebra in adult life.

In 1942 Hingson and Edwards developed continuous caudal analgesia and anesthesia. Since then Hingson and Edwards and many others have written in detail about the technic for administration of caudal anesthesia.

Heretofore, the procedure used for insertion of the caudal needle has been described by Hingson and Edwards in recent literature, also by Lundy and Dogliotti in their textbooks on anesthesia.

The method which is presented and which differs from these, offers the following advantages over other procedures for insertion of the caudal needle.

Preparation of Anesthetic Solution.—Hingson and Edwards recommend 1½ per cent metycaine (1 cc. of this dilution contains 15 mg. or approximately ¼ of a grain of metycaine). Posner and Buch recommend 2 per cent procaine solution (1 cc. of this dilution contains 20 mg. or ⅓ grain of procaine).

Position of the Patient.—(1) The patient should be in a prone position with the pelvis and lumbar spine elevated by placing a pillow between the pubis and the umbilicus: (2) right lateral Sims position with anesthetist facing the patient.

Skin Preparation.—Paint the skin with merthiolate or metaphen or any well known skin antiseptic, beginning above at the fifth lumbar space and covering the skin in both directions laterally to the axillary line and well below the gluteal crease and, finally and lastly, from above downward, paint or spray the anal crease and around the anus. If using a sponge, never make a second stroke with the sponge that you have used in the anal crease or near the anus. If this technic is followed, it will lessen the potential danger of carrying infection from the anal region to the hiatus where the caudal needle is to be inserted. The anesthetist must scrub and use sterile gloves as is the usual practice in spinal anesthesia.

Position of the Operator.—With the patient in a prone position the operator is looking down upon the sacrum. With the patient in a right lateral Sims position the operator faces the patient.

Step 1.—The potential danger of infecting the area where the caudal needle is to be inserted will be decreased by palpating with left index finger, from above downward. The rudimentary spinous processes of the sacrum can be palpated easily in a lean person and, with greater difficulty, in the obese.

Caudally, a short distance before reaching the anal fold there is perceived a depression which laterally is limited by two more or less marked prominences that form the base of the hiatus triangle. Keeping the left index finger at this spot, with a 10 cc. syringe with $1\frac{1}{2}$ inch, 22 gauge needle, filled with 2 per cent procaine solution, make an intradermal wheal just beneath the tip of the

left index finger. The syringe and needle are kept horizontal during this maneuver. Advance the needle into the subcutaneous tissue, at the same time exerting pressure with tip of the left index finger so that the needle pierces the sacrococcygeal ligament almost at right angle, always holding syringe horizontal.

Step 2.—Keeping the left index finger in place, lay aside the syringe and needle and pick up the 19 gauge special caudal needle (Hingson-Edwards) with the right hand. Insert this needle by exactly the same movements. Continue the insertion slowly and evenly in the midline for from 1 to 2 inches within the sacral canal. The needle point should lie inferior to the lowest extent of the dural sac; that is, the needle point must not go beyond the uppermost portion of the third sacral segment. This can be ascertained by measuring on the skin with the stilet withdrawn from the caudal needle.

Step 3.—Attach a short hose to the collar of the special caudal needle, take a 2 cc. empty syringe and gently make several attempts to withdraw the spinal fluid or blood whichever the case may be. If the subarachnoid space has been entered, spinal fluid will be aspirated. If a blood vessel has been entered, blood will be aspirated. Rotate the caudal needle 180 degrees and repeat exactly the same movements as before.

The 2 cc. syringe is less likely to aspirate tissues against the end of the needle than a larger syringe, thus avoiding the possibility of being in subarachnoid space or a blood vessel and at the same time be unable to withdraw the spinal fluid or blood.

Fill a 10 cc. springe with isotonic saline solution, inject slowly; if the caudal needle is in the blood vessel no resistance will be noted. If the caudal needle has pierced the dural sac, this will permit the saline to be injected into the subarachnoid space and would likely produce the following symptoms; headache, nausea and possibly vomiting. These symptoms may be disturbing to the patient, but there is nothing in the isotonic saline solution that could be toxic and this is an additional harmless test for piercing the dural sac.

Step 4.—Connect the 10 cc. syringe which contains the remaining 8 cc. of the anesthetic agent. Inject this into the caudal canal and wait for ten minutes for indications of spinal anesthesia. If the operator is using $1\frac{1}{2}$ per cent metycaine solution, he will have injected 120 mg. If he is using 2 per cent procaine he will have injected 180 mg. of the anesthetic agent. Either the 120 mg. metycaine, or 180 mg. procaine are within the limits of spinal anesthesia dosage.

Step 5.—Fill a 36 inch hose with the anesthetic agent and connect it to the short hose; inject 10 cc. of 1½ per cent metycaine or 2 per cent procaine solution and wait 10 minutes. If there are no symptoms of spinal anesthesia, then inject 20 cc. of the isotonic saline solution. This will increase the diffusion of the anesthetic agent and also will increase the anesthesia without increasing the anesthetic dosage beyond the maximum single spinal anesthetic dos-

age of 200 mg. Repeat this maneuver in each subsequent injection.

By this procedure the operator actually repeats the test for spinal anesthesia by waiting ten minutes following the injection of each 10 cc. of the anesthetic agent. By subsequently injecting 20 cc. of the isotonic saline solution, the caudal anesthesia will be increased without the danger of massive spinal anesthesia.

SUMMARY

- 1. Position of the patient and the operator is essential for locating the hiatus in the sacrum. By palpating landmarks from above downward instead of from coccyx upward will simplify the procedure greatly and lessen the possibility of infection being carried from the anus to the hiatus where the caudal needle is to be inserted.
- 2. Careful and adequate skin preparation, preferably using the spray instead of the sponge stick, also will lessen the possibility of infection being carried to the hiatus.
- 3. For the operator of limited experience in continuous caudal analgesia the pressure point technic is followed easily.
- 4. The injection of isotonic saline solution into the caudal canal is a test for piercing the dural sac or blood vessel.
- 5. Obviously, the technic with which one is most familiar should be used.
- 6. With the pressure point technic, the possibility of piercing the rectum, vagina and the unborn infant is much less apt to occur.
- 7. Unless one is familiar with the normal and abnormal anatomy of the sacrum, caudal canal and the peridural space, any attempt to insert the caudal needle should be left to the operator who is well qualified.
- 8. In 95 per cent of all patients, the sacral canal is located without difficulty and caudal analysesia may be administered successfully.
- 9. Wait ten minutes following the injection of each 10 cc. of the anesthetic agent, subsequently inject 20 cc. of isotonic saline solution. This will increase the caudal anesthesia and will prevent massive spinal anesthesia.
- 10. Caudal analgesia is humane, satisfactory, efficient and conservative.

6122 Page Blvd.

"Prof. Ross G. Harrison, chairman of the National Research Council, has announced the appointment of Major Gen. James Carre Magee, Medical Corps, United States Army, retired, as executive officer of the Informational Service of the Council's Division of Medical Sciences," The Journal of the American Medical Association for December 4 reports. "This service has been established by the National Research Council under the recent grant of the Johnson and Johnson Research Foundation, by which the sum of \$75,000 was made available to the council for the period ending June 30, 1945. The purpose of the grant was to enable the council to assemble and disseminate, as far as possible, medical information pertaining to the war effort. . . ."

General Magee retired last May as Surgeon General of the Army. He recently received the Distinguished Service Medal for his accomplishments in the office.

THE JOURNAL

of the

Missouri State Medical Association

623 Missouri Bldg. Telephone: Newstead 0404-05

Subscription \$3.00 a year in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent.

MARCH, 1944

EDITORIALS

THE ANNUAL SESSION

A patriotic program will open the 87th Annual Session of the Missouri State Medical Association which will be held in Kansas City, April 23, 24 and 25. Unveiling of the roster of the physicians in military service from the Jackson County Medical Society will inaugurate the third session of the Missouri State Medical Association during this war. The unveiling will take place at 12:30 p. m., April 23, preceding the session of the House of Delegates which will convene at the Municipal Auditorium at 2:00 p. m. A military band, representatives of the various branches of the armed forces and civilian participants in the war effort, short addresses by several speakers including Dr. A. W. McAlester, Jr., President of the Association, and Dr. Harry L. Jones, President of the Jackson County Medical Society, will be part of the program of the unveiling which will take place on the malls of the General Hospital in Kansas City.

The opening session of the House of Delegates will be on Sunday, April 23, and the second session on Tuesday, April 25, at 2:00 p. m. The Council will meet for official sessions of the Annual Session at 8:00 a. m. Monday morning, April 24, at breakfast, and following the final session of the House of Delegates on April 25.

Guest speakers at the scientific session on Monday will be Col. John T. King, M. C., Chief of Medical Service, Army Medical Center, Washington, D. C., and Dr. Henry K. Ransom, Associate Professor of Surgery, University of Michigan, Ann Arbor. Col. King will conduct a symposium, with the aid of Missouri physicians, on "Heart and Hypertension" at the morning session and Dr. Ransom will speak on "Abdominal Incisions." At the afternoon session, Dr. Ransom, with the aid of Missouri physicians, will conduct a symposium on "Preoperative and Postoperative Care and Postoperative Complications," and Col. King will speak on "Cardiac Disorders in an Army General Hospital." The Tuesday morning session will be devoted to refresher or panel discussions on "Traumatic Surgery," "Gastro-Duodenal Lesions," "Abnormal Obstetrics" and "Diabetes." These will run simultaneously.

On Monday evening the banquet in honor of Past Presidents will be held at the Muehlebach Hotel. Father Alphonse M. Schwitalla, S. J., Dean, St. Louis University School of Medicine, will speak at the dinner and Dr. A. W. McAlester, Jr., Kansas City, President, will present the Address of the President.

Secretaries and presidents of component societies will be guests of the Association at a dinner meeting Sunday evening at the Muehlebach Hotel at which problems of the county society and the Association will be discussed at a round table.

The Committee on Maternal Welfare and the Committee on Infant Care will hold a joint luncheon meeting Monday noon, April 24. Dr. W. W. Bauer, Chicago, and Dr. M. L. Gentry, Jefferson City, will be guests at the luncheon.

The alumni of the University of Missouri School of Medicine will hold a luncheon meeting on Tuesday noon. Several speakers will be guests at the luncheon.

Lt. Col. Curtis H. Lohr, M. C., President-Elect, St. Louis, now serving in the armed forces, will be installed in absentia at the Tuesday afternoon session of the House of Delegates.

LESSONS FROM THE ALLOCATION OF INTERNS

In the years 1940, 1941 and 1942, as the staffs of hospitals were called to the colors, some hospitals, notably those with large ward services, increased the house staff in order to provide adequate care. Many institutions with expanded opportunities for interns were teaching hospitals and hence in the eyes of the young graduate desirable places to train. By March 1943 the distribution of interns was most unequal and the Procurement and Assignment Service began to give some thought to a solution of the problem. Many smaller non-teaching hospitals had no house officers and were unable to furnish good medical care.

The result of the thoughts of those in Washington is well known to everyone—the 9-9-9 plan for allocation of interns and residents. No physician is anxious to continue government regulation beyond the duration, but the problem of unequal distribution of interns will be with us after the war as it was before the war.

In 1941 there were 5,275 medical graduates and 6,874 internships approved by the Council on Medical Education and Hospitals of the American Medical Association. The law of supply and demand dictates that this constitutes a seller's market. The graduate could select what he regarded as the best internship. In 1944 each hospital with approved positions should receive a fair share of the total. But at the end of the war, the teaching hospitals will again bid competitively and appoint more men.

The small non-teaching hospital has a golden opportunity now. Let them revise their services and introduce a real educational program. Let the staff of the private hospital take an active interest in the teaching program. Let the boards of trustees provide funds for an adequate library, for a laboratory and for other educational and scientific features. The interns in a well run hospital will write back to their friends at school "This is a good place, why not apply here?" Within a few years, the pathway from the school to the small hospital will be well marked and frequently travelled. No government regulation will be needed to attract interns. Now is the time to act and plan for the future.

NEWS NOTES

A regional conference on venereal disease control was held in the Higginsville District Health office at Higginsville on January 24.

Dr. P. E. Coil, Mexico, addressed the weekly luncheon meeting of the Mexico Rotary Club at Mexico on January 21. He spoke on "Socialized Medicine."

Dr. Maurice P. Leech, Fayette, addressed a group of premedical students of Central College at the Lee Hospital, Fayette, on January 5. He spoke on venereal disease control and socialized medicine.

Lt. Col. Edward H. Hashinger, Kansas City, recently returned from North Africa where he was the medical director of the 77th Evacuation Hospital Unit, spoke over WDAF in Kansas City on January 12, on medical and surgical equipment needed by the armed forces.

Dr. Carl V. Moore, St. Louis, was reelected secretary-treasurer of the Central Society for Clinical Research at a meeting held in Chicago on November 5. Dr. Moore and Dr. Paul O. Hageman, St. Louis, read abstracts in the scientific meeting.

Dr. Otto J. Wilhelmi, St. Louis, was the guest of the Franklin County (Illinois) Medical Society at Benton, Illinois, on February 23. Dr. Wilhelmi spoke on "When the General Practitioner Should Advise Prostatic Surgery."

Mr. Raymond McIntyre. Executive Secretary of the Missouri State Medical Association, has entered service in the U. S. Navy with a commission of Lieutenant (j.g.). He is on leave of absence from the Association. Dr. Frank H. Hodgson, Kansas City, was elected president of the Metro Club for 1944. The Metro Club is a civic organization.

Lt. Col. William J. Shaw, Fayette, Division Surgeon of the 41st Division of the U. S. Army in Australia, has been awarded the Legion of Merit decoration for outstanding service in New Guinea from March 1 to July 15, 1943.

RAMBLING OBSERVATIONS BY A ROVING REPORTER

When people hear of the million dollar budgets for advertising, they frequently ask one another "I wonder if modern advertising pays." Vitamania, the pandermic disease of civilized man, is the living proof of an affirmative answer. The annual take is over two hundred million, one out of every five people in the U.S. regularly takes some sort of pill, capsule or liquid, and one out of every three who enter a drug store—pardon me, an emporium with a small drug counter, buys vitamins. Pontifical statements by the medical profession have had no effect. Perhaps medicine should take to the soap box, radio and billboard. But, what is the use; "a fool is soon separated from his money." All fads run their course. The next generation may find it easier to eat carrots, whole wheat bread, meat, eggs, milk and fish than swallow pills. The saving grace is that the concoctions apparently do no harm.

The recent illness of the President brings to mind the \$64 question for this month; what president of the United States had a surgical operation on a yacht at sea, and why was absolute secrecy maintained? If you have time, that is, if you are one of those medical officers sent someplace by Washington and then forgotten, read the charming account written by Dr. W. W. Keen. If you are like most civilian doctors today—busier than a bee—the answers are: President Grover Cleveland because of the gold-silver controversy.

What drug house would not gladly exchange places with the British Company that manufactures M & B? Parenthetically the initials stand for the name of the firm, and in plain American, M & B is nothing more than sulfapyridine. Now that a sulfonamide has cured his Majesty's Principal Minister, even the die-hards will have to acknowledge that perhaps there is something to all the hullabaloo about chemotherapy. The whole incident is reminiscent of the early days of chloroform as an obstetric analgesic and amnesic. Many would not use it until the good Queen Victoria sniffed some to ease the pain of bringing into the world one of the many princes and princesses who repopulated the royal house of Europe. It looks as though

the British form of government has some subtle advantages which have been overlooked.

The psychiatrists of Germany and America had better start collecting the facts and planning the offense and defense. If we try Mr. Hitler, Mr. Goebbels, Mr. Himmler et al in a court of law for their crimes against civilization, they may plead temporary insanity. A much more logical plea would be permanent congenital insanity, perhaps hereditary in the Prussian Militarist. And if the Americans follow their usual leaning-over-backward attitude of fairness to the criminal, we will have days and weeks of the usual wrangling of the brain specialists—"I say he is sane and responsible" and "I say he is insane and incompetent to answer for his acts."

With the new bombs of really effective insecticide developed by the Army, picnics after the war will become a pleasure instead of the usual stacatto of slap, ouch, slap. Perhaps the quartermaster can develop a technic to keep the sand out of the sandwiches and the bull in the neighboring pasture.

Take care, medical editor. You may be called to Washington to prove that the illustrations in your journal do not violate the established code of bureaucracy. Make certain all photographs are truly educational and not just creatures of an artistic mind. Any resemblance to *Esquire* is purely coincidental.

The new journal, Soviet-American Medicine, shows the rare judgment of Walter Cannon and the fine editorial hand of Siegerist. It is worth the subscription price just to know that all those Russian hieroglyphics can be translated into good medicine and science. The only trouble with Soviet medical men is their repeated accomplishment of the foolhardy, illogical and impossible. Witness blood from cadavers and such, including helping to explode the myth of the invincibility of the Wehrmacht.

How war clouds one's perspective. We must learn to say ECG instead of the EKG of our youth because K is derived from German. Perhaps a thorough revision of the language is required. After all, the house is das Haus, stool is der Stuhl and so on ad infinitum. An interim of a nasty crowd can not wipe out the civilization of centuries. It looked like we had outgrown the naive notion of victory cabbage instead of sauerkraut. Words were invented to convey a thought or idea from one person to another and not to entangle the user in the political ideals of a house painter who happens to use the mother language centuries after it was established.

The orchids for the month go to radio. "The man behind the gun" on a recent Saturday night was "The woman behind the gun"—an army nurse. On the following Monday, Cavalcade of America dramatized the Medical Research Institute of the Naval Medical Center. Lay appreciation of the role of medicine in modern war is becoming more evident.

DEATHS

Redman, Spence, M.D., Platte City, a graduate of Jefferson Medical College of Philadelphia, 1883; member, former president and secretary since 1923 of the Platte County Medical Society; Fellow of the American Medical Association; aged 81; died December 21.

Bennett, Floyd William, Jr., M.D., St. Louis, a graduate of St. Louis University School of Medicine, 1937; member of the St. Louis Medical Society; aged 33; died December 26.

Butler, Fred E., M.D., Salem, a graduate of the University of Kansas School of Medicine, 1930; member and president of the Dent County Medical Society; Fellow of the American Medical Association; aged 40; died January 3.

Niedringhaus, Ralph Edgar, M.D., St. Louis, a graduate of the St. Louis College of Physicians and Surgeons, 1898; member of the St. Louis County Medical Society; Fellow of the American Medical Association; aged 66; died January 19.

Trigg, Joseph M., M.D., St. Louis, a graduate of the College of Physicians and Surgeons, Keokuk, Iowa, 1893; member of the St. Louis Medical Society; Fellow of the American Medical Association; aged 73; died January 27.

ORGANIZATION ACTIVITIES

CONFERENCE ON MEDICAL SERVICE

Two important meetings at which medical service was discussed were held February 12 and 13 at the Palmer House, Chicago. At both meetings members of the Missouri State Medical Association played an important role.

At the Midwinter Conference of directors and those interested in prepayment medical plans, Mr. J. C. Ketcham of the Michigan Medical Service, spoke on "Prepaid Medical Service vs. the Wagner Act." He pointed out how prepayment medical plans on a voluntary basis could be an answer by organized medicine to the Wagner-Murray-Dingell bills.

He was followed by Mr. John M. Pratt, Executive Director of the National Physicians' Committee, who explained and illustrated by reprints, editorials and cartoons what the committee was doing to defeat the bills and create a public relations attitude favorable to the medical profession. At the luncheon meeting, Dr. C. Rufus Rorem spoke informatively and interestingly on Blue Cross plans.

In the afternoon, Dr. Ira H. Lockwood, Kansas City, spoke on "The Relationship of Hospitals and Medical Service Plan Corporations" pointing out how the two working together could be of great

assistance in delivering the proper medical care to the people in the American way. Round table discussions then followed and many vexing problems were presented and solutions offered by those who had experienced similar difficulties.

To one who has sat in such meetings for more than twelve years, the astounding thing is the great number of people who are now interested in medical care programs and the fund of knowledge and experience they have developed in so short a time. It is quite evident that within the next ten years actuarially sound plans will be evolved. It is equally evident that each state and probably each county must do its own experimenting because each has its own individual problem. When once medical plans have been developed on the state level, I believe they can be coordinated in some manner on a national basis just as Blue Cross plans are at this time.

On February 13, the 18th Annual Meeting of the National Conference on Medical Service was held and men from all over the country appeared on the program. Roland W. Waterson, Gary, Indiana, told of the "Plans of Lake County, Indiana, Physicians for a National Organization." Dr. Michael A. Tighe, Boston, gave "Proposals by the Medical Societies of New England" and Dr. Dwight H. Murray told of the "Western Public Health League." These papers made it evident that in at least three sections of the country attempts are being made on a large scale to develop united effort against adverse public relations and bills such as the Wagner-Murray-Dingell bills.

The high light of the day was the speech delivered by the Hon. Walter H. Judd, M.D., Congressman from the Fifth District, Minnesota. He gave an intimate picture of what is going on in Washington and in his conclusions felt that the medical profession should have some bureau in Washington representing it officially as a two-way shuttle, giving authentic information to members of Congress on all bills and keeping the profession informed up to the minute on what is happening.

The apparent disunity of purpose and action by the various sections of the country was presented strenuously by Dr. Morris Fishbein. He felt that, first, the Council on Medical Service and Public Relations should be permitted to develop its program and, second, that the National Physicians' Committee was doing a splendid piece of work. It probably was the consensus of opinion of disinterested nonpartisan groups that this plan should be followed.

Dr. L. H. Bauer, Hempstead, N. Y., Chairman, Council of Medical Service and Public Relations, created by the House of Delegates of the American Medical Association in 1943, told of the activities of this group and gave the impression that it would be very positive in its leadership.

A paper "The Challenge to American Medicine," was given by Dr. E. H. Skinner, Kansas Cty, in which he presented the many activities and accomplishments of the National Physicians' Committee.

A "Digest of Recent Medical Legislation" was presented by J. W. Holloway, Jr., Director, Bureau of Legal Medicine of the American Medical Association.

The program was closed by a paper on "Obstetric and Pediatric Care for Soldiers' Wives and Infants," by Dr. W. W. Bauer, Director, Bureau of Health Education of the American Medical Association.

The programs of the two meetings gave a clear cross section of medical thinking and activities that are taking place throughout the country. Problems in the various sections of the country are different. Solutions are controversial and it is apparent that organized medicine must develop a strong central leadership or the government will take it over, for a time at least, just as it does in industry. With a positive program and strong leadership working with the government, I believe the medical profession can continue to deliver the kind of medical care that the American people want.

CARL F. Vohs, M.D., Chairman, Committee on Medical Economics.

"This week the Council on Pharmacy and Chemistry of the American Medical Association enters its fortieth year of service to the public and the medical profession," The Journal of the Association for February 12 says. "Since its first meeting on Feb. 11, 1905, the Council has fought continuously for rational therapeutics. It has created much change in the practice of therapeutics. Its activities and decisions are highly respected and are followed internationally by leading medical authorities; its advice is sought frequently by administrative, advisory and educational bodies in this country and in others. . . . It is fortunate indeed for the public and the medical profession that there exists an unselfish body such as the Council which can give scientific consideration to rational therapeutics and issue its statements without fear or favor."

TELLS OF DEVICE WHICH ENABLES ONE-ARMED PERSON TO WASH HAND

A simple, inexpensive device which enables a one-armed person to wash his hand is described by John R. Brayton, M.D., Indianapolis, in *The Journal of the American Medical Association* for January 22. "The idea," he says, "is simply to attach two rubber vacuum cups to any brush. As far as I know, this particular use of the vacuum cup is new and I hope the idea will be of value to the unfortunate cripples who need it."

With the vacuum cups in place, the brush can be attached to the back of any wash bowl, thus enabling the user to wash his hand and arm by first placing soap on the brush and then rubbing his wet hand or arm up and down on the brush. The user can carry the brush with him and use it at any time or place.

him and use it at any time or place.

In his letter to the Editor of *The Journal*, Dr. Brayton says: "Recently, without thinking, I told a one-armed man who was in my office to wash his hand. He replied 'How would I do it?' Obviously his plight is similar to the plight of many others and there probably will be many more when the casualties of the war come back. I am sending you a brush which I have prepared for the use of this patient. I have never seen or heard of any similar device nor have my friends who have seen it. . . .

"The little rubber vacuum cups are still available in Indianapolis in limited quantities and if the brush would meet any great demand it probably could be manufactured economically by a large manufacturer of brushes."

COUNCILOR DISTRICT AND SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL 1944

(Societies Which Have Paid Dues for All Members and Date Placed on Honor Roll)

Benton County Medical Society, November 17, 1943.

Chariton County Medical Society, December

1, 1943.

Camden County Medical Society, December 7,

1943.

Webster County Medical Society, December 7, 1943.

Perry County Medical Society, December 11, 1943.

Moniteau County Medical Society, December 15, 1943.

Carter-Shannon County Medical Society, December 15, 1943.

Ste. Genevieve County Medical Society, December 20, 1943.

Scott County Medical Society, December 20, 1943.

Dallas-Hickory-Polk County Medical Society, December 28, 1943.

Holt County Medical Society, January 10, 1944.

Mercer County Medical Society, January 12, 1944.

Pulaski County Medical Society, January 15,

Macon County Medical Society, January 15, 1944.

Stoddard County Medical Society, January 19, 1944.

Miller County Medical Society, January 29,

Christian County Medical Society, February 3, 1944.

Cass County Medical Society, February 4, 1944.

ASSOCIATE EDITORS: COUNCILORS OF THE TEN COUNCILOR DISTRICTS

SIXTH COUNCILOR DISTRICT

R. W. KENNEDY, MARSHALL, COUNCILOR

Lafayette County Medical Society

The Lafayette County Medical Society met January 25 in the Red Cross Room in Higginsville.

Dr. W. A. Braecklein, Higginsville, was installed as president, and the following officers were elected: President-elect, Dr. W. E. Koppenbrink, Higginsville; secretary-treasurer, Dr. L. M. Garner, Higginsville; censor for three years, Dr. E. L. Johnston, Concordia;

delegate, Dr. L. M. Garner, Higginsville; alternate, Dr. C. T. Ryland, Lexington.

L. M. GARNER, M.D., Secretary.

EIGHTH COUNCILOR DISTRICT

WALLIS SMITH, SPRINGFIELD, COUNCILOR

Barry-Lawrence-Stone County Medical Society

The Barry-Lawrence Stone County Medical Society met December 14 at the Barry County Hospital, Cassville.

The following officers were elected: President, Dr. W. A. Kenneth Glover, Mount Vernon; vice president, Dr. Lewis H. Ferguson, Monett; secretary-treasurer, Dr. George W. Newman, Cassville; delegate, Dr. George W. Newman, Cassville, and Dr. Frank T. Kerr, Monett.

It was decided to run full page advertisements, as suggested by the National Physicians Committee, against the Wagner-Murray-Dingell bills in the three county newspapers.

George W. Newman, M.D., Secretary.

Dallas-Hickory-Polk County Medical Society

The Dallas-Hickory-Polk County Medical Society met at the office of Dr. A. S. Johnston, Wheatland, December 1.

The following were present: Drs. D. C. McCraw and J. F. Roberts, Bolivar; A. J. Stufflebam and R. C. Nevins, Humansville; L. A. Glasco, Urbana; T. D. Wrinkle, Halfway; A. S. Johnston, Wheatland; G. C. Plummer, Buffalo; J. L. Johnston, Springfield.

Following dinner Dr. J. L. Johnston, Springfield, read a paper on "Peptic Ulcer" written by Dr. A. Denton Vail, Springfield, who could not attend because of illness

The following officers were elected: President, Dr. R. C. Nevins, Humansville; vice president, Dr. G. C. Plummer, Buffalo; secretary-treasurer, Dr. D. C. McCraw, Bolivar; board of censors, Dr. A. S. Johnston, Wheatland (Hickory County), Dr. J. F. Roberts, Bolivar (Polk County), Dr. L. A. Glasco, Urbana (Dallas County); delegates, (Hickory County) Dr. A. S. Johnston, Wheatland; (Polk County) Dr. D. C. McCraw, Bolivar, alternate, Dr. A. J. Stufflebam, Humansville; (Dallas County) Dr. G. C. Plummer, Buffalo, alternate, Dr. L. A. Glasco, Urbana.

G. C. Plummer, M.D., Secretary.

NINTH COUNCILOR DISTRICT

E. C. BOHRER, WEST PLAINS, COUNCILOR

South Central Counties Medical Society

The South Central Counties Medical Society met December 1 at the office of Dr. E. C. Bohrer, West Plains.

The following were present: Drs. E. C. Bohrer, West Plains, president; C. F. Callihan, Willow Springs, vice president; L. M. Dillman, Houston, secretary-treasurer; R. A. Ryan, H. C. Frame and R. W. Denney, Mountain Grove; J. R. Mott, Hartville; L. T. Van Noy, Norwood; R. M. Norman, Ava; A. H. Thornburgh, West Plains.

It was voted to fix local dues at \$1.00 for the ensuing

It was decided to send \$50.00 to the Community Health League.

The Society went on record as opposed to the maternal and infant care of wives and children of men in service.

Upon motion it was decided to divide the South Central Counties Medical Society into the Howell-Oregon-

Texas County Medical Society and the Wright-Douglas County Medical Society.

Officers for the two societies were elected as follow: Howell-Oregon-Texas County Medical Society: President, Dr. E. C. Bohrer, West Plains; vice president, Dr. C. F. Callihan, Willow Springs; secretary-treasurer, Dr. L. M. Dillman, Houston; delegates (Howell County) Dr. C. F. Callihan, Willow Springs, alternate, Dr. A. H. Thornburgh, West Plains; (Texas County) Dr. L. M. Dillman, Houston, alternate, Dr. Leslie Randall, Licking; (Oregon County) Dr. F. A. Barnes, Thayer, alternate, Dr. C. W. Cooper, Thayer.

Wright-Douglas: President, Dr. R. W. Denney, Mountain Grove; vice president, Dr. L. T. Van Noy, Norwood; secretary-treasurer, Dr. A. C. Ames, Mountain Grove; delegates (Wright County) Dr. R. A. Ryan, Mountain Grove, alternate, Dr. H. G. Frame, Mountain Grove; (Douglas County) Dr. M. C. Gentry, Ava, alternate, Dr. R. M. Norman, Ava.

The next meeting of the Howell-Oregon-Texas County Medical Society will be held in Houston with Major Ronald F. Elkins, Fort Leonard Wood, presenting the program.

L. M. DILLMAN, M.D., Secretary.

TENTH COUNCILOR DISTRICT

PAUL BALDWIN, KENNETT, COUNCILOR

St. Francois-Iron-Madison-Washington-Reynolds County Medical Society

The St. Francois-Iron-Madison-Washington-Reynolds County Medical Society met at the State Hospital, Farmington, January 27. The following were present: Drs. S. A. Lanzafame, Frank J. Nichols, Emmett F. Hoctor and Reuben Appleberry, Farmington; David E. Smith and Ferdinand Welebir, Bonne Terre; Ben M. Bull, Ironton; Moses B. Barber, Harry W. Barron and S. C. Slaughter, Fredericktown; W. E. Aubuchon, Arnold Traubitz and John W. Hunt, Jr., Leadwood; H. C. Gaebe, Desloge; J. P. Yeargain, Irondale; Harry Poston, Bonne Terre; J. W. Williams, Jefferson City, and Mr. L. W. Pickles, state sanitary engineer for the district.

The meeting was called to order by the president, Dr. Reuben Appleberry, after which the meeting was placed in charge of Dr. Emmett F. Hoctor and members of the Staff of the State Hospital.

Dr. S. A. Lanzafame presented an interesting and instructive lecture on "Electric Shock Therapy of Psychotic Patients."

Dr. Frank J. Nichols presented an unusual case of Von Recklinghausen's disease.

Dr. Romiser discussed psychopathic personality from the standpoint of diagnostic difficulties and the prognostic hopelessness of such cases.

Dr. J. W. Williams brought greetings to the Society from Dr. James Stewart, State Health Commissioner.

JOHN W. HUNT, JR., M.D., Secretary.

Ste. Genevieve County Medical Society

The Ste. Genevieve County Medical Society met on December 15.

The following officers were elected: President, Dr. A. E. Sexauer, Ste. Genevieve; vice president, Dr. C. J. Clapsaddle, Ste. Genevieve; secretary-treasurer, Dr. Robert W. Lanning, Ste. Genevieve; member board of censors, Dr. R. C. Lanning, Ste. Genevieve; delegate, Dr. J. A. Wilkens, St. Marys; members committee on public health and legislation, Drs. J. A. Wilkens, St. Marys, C. J. Clapsaddle and R. W. Lanning, Ste. Genevieve

R. W. LANNING, M.D., Secretary.

BOOK REVIEWS

J. MISSOURI M. A

MARCH, 1944

A Guide to Practical Nutrition. A series of articles on nutrition, sponsored by the Committee on Nutrition and Deficiency Diseases of the Philadelphia County Medical Society. Edited for the Committee by Michael G. Wohl, M.D., and John H. Willard, M.D. Introduction by Morris Fishbein, M.D., Editor, Journal of the American Medical Association. 1943.

For review purposes the chapters in this book will be combined with the most important facts noted.

Food requirements and deficiency diseases are discussed in the first section of the book. The present lowered protein intake may lead to deficiency diseases. Subclinical signs of this condition must be kept in mind in making diagnosis. The necessity for ample vitamin B for complete utilization of carbohydrate and fat is stressed. The diets that were presented should have been omitted since the basic seven rules of good nutrition have not been followed in the menus. Nutrition of children deals with feeding problems rather than food requirements in childhood. In feeding the older individual, many valuable suggestions are given which could be carried out by anyone.

On the whole, the chapters on vitamin requirements have been handled much better than the subject matter in the first part of the book. The discussions deal with the vitamin B complex and riboflavin. Pertinent and recent facts have been presented in a concise form regarding these vitamins. This includes the source, nature, function, incidence, signs of deficiency and requirement.

The appendix contains tables that would be of more practical value had they been given in terms of weight in average servings rather than on a percentage basis. This also is true in the chapter on the mineral content of foods.

A general criticism of this book is repetition of subject matter. This frequently occurs when different authors contribute to make up a publication. The organization could be improved upon but this is not a serious objection. A book such as this has some value to physicians who have had little opportunity for a review of recent work in the field of nutrition.

M. M. B.

Skin Grafting of Burns. Primary Care—Treatment—Repair. By James Barrett Brown, M.D., Lieutenant Colonel, Medical Corps, Army of the United States; Senior consultant in Plastic and Maxillo-facial Injuries and Burns, E.T.O.U.S.A., Associate Professor of Surgery, Washington University, St. Louis, Missouri, and Frank McDowell, M.D., Assistant in Clinical Surgery, Washington University, St. Louis, Missouri. 131 Illustrations. Philadelphia: J. B. Lippincott Company. 1943. Price \$5.00.

This is essentially just what the title implies. The book embraces some 200 pages with many excellent photographs portraying end results. General practitioners and surgeons, whether performing general or specialty surgery, can read with profit its pages. It again emphasizes (and quite well) the fine functional and often excellent cosmetic result obtainable by skin grafting. Varieties of skin grafts, with their application are clearly and concisely presented.

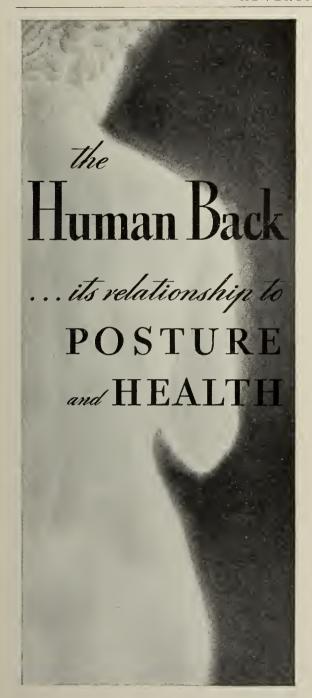
tion are clearly and concisely presented.

Early care of burns in civil life is discussed, along with a chapter on treatment of burns in the present

war by Dr. Brown.

Too few realize the labor and interest necessary along with careful planning to achieve the results herein portrayed so well. Wider interest and further improvement may be expected as a result of the author's fine presentation.

W. R. H.



May we send you this helpful new booklet free for presentation to your patients?

Last year the Samuel Higby Camp Institute for Better Posture, in collaboration with eminent authorities, prepared a little booklet "Blue Prints for Body Balance" which has been supplied to thousands of physicians, free, at their request. Now we have prepared a new companion booklet which is just off the press.

This additional sixteen-page booklet, "The Human Back . . . Its Relationship to Posture and Health," tells its story in simple, non-technical language, and is attractively illustrated. It is educational, non-commercial, informative . . . an ethical booklet for physicians to give their patients. We believe it will inspire its readers to a better appreciation of the importance of good posture and professional medical counsel.

We shall be glad to send you as many copies as you wish, free. The booklet measures $3\frac{1}{2}$ by $6\frac{1}{2}$ inches, and is attractively printed in color. Just use the coupon below, or write on your professional letterhead to the

SAMUEL HIGBY CAMP INSTITUTE FOR BETTER POSTURE

Empire State Building, New York 1, N. Y. (Founded by S. II. Camp and Company, Jackson, Michigan)

Samuel Higby Camp Institute for Better Posture Empire State Building, New York 1, N. Y.
Please send me FREE copies of booklets as indicated below
Copies of "THE HUMAN BACK"
Copies of "PLUE PRINTS "

Name M.D.

Street

City, Zone and State



How many of these two helpful booklets shall we send you-FREE?

Prepared in collaboration with emment authorities, both give vital information on the importance of posture to good health. Insert quantities of each desired on order form to left.



INDEX TO ADVERTISERS

BOOKS RECEIVED

Abbott Laboratories
Bernheim Distilling Company39Borden Company11Brewing Industry Foundation17Burroughs Wellcome & Company14
Camel Cigarettes9Camp, S. H. & Company25Cheplin Laboratories, Inc.27Ciba Pharmaceutical Products, Inc.29Ciba Pharmaceutical Products, Inc.InsertCoca-Cola Company35Cook County Graduate School of Medicine35
Denver Chemical Manufacturing Company 38
Faith Hospital
General Electric X-Ray Corporation15Glenwood Sanatorium30Gradwohl School of Laboratory Technique37Grandview Sanitarium24
Hamilton-Schmidt Surgical Company30Hanger, J. E., Inc.28Holland-Rantos Company6Hotel Reservations32Hynson, Westcott & Dunning, Inc.22
Isle, W. E., Company
Lederle Laboratories, Inc.8Lilly, Eli and Company16Lov-E Brassiere Company41Luzier's, Inc.33
M & R Dietetic Laboratories, Inc.40Major Clinic Association5Mead Johnson & Company44Medical Protective Company19Milwaukee Sanitarium1Miscellaneous Announcements36Mosby, C. V., Company-31Mullen Ambulance Company24
National Pathological Laboratory35Neurological Hospital, The30Norbury Sanatorium19
Ortho Products, Inc
Parke, Davis & Company4Petrogalar Laboratories, Inc.43Philip Morris & Company12Physicians Casualty Association28Pogue, Mary E., School24
Ralph Sanitarium
Schmid, Julius, Inc.10Searle, G. D., Company20, 21Smith-Dorsey Company37Spencer Corset Company22Stokes Sanitarium36
Upjohn Company
Wallace Sanitarium28White Laboratories, Inc.7Winthrop Chemical Company13World Insurance Company36Worrell, Dorothy37Wyeth, John and Brother2
Zemmer Company 24

THE 1943 YEAR BOOK OF INDUSTRIAL AND ORTHOPEDIC SUR-CERY. Edited by Charles F. Painter, M.D. Orthopedic Surgeon to the Massachusetts Women's Hospital and Beth Israel Hospital, Boston. Chicago: The Year Book Publishers. 1943. Price \$3.00.

The Arthropathies. A Handbook of Roentgen Diagnosis. By Alfred A. de Lorimier, A.B.; M.A.; M.D. Colonel, Medical Corps, United States Army; Commandant, The Army School of Roentgenology, Memphis, Tenn. Formerly Director, Department of Roentgenology, Army Medical School, Washington, D. C. Chicago: The Year Book Publishers. 1943. Price \$5.50.

Office Treatment of the Nose, Throat and Ear. By Abraham R. Hollender, M.Sc., M.D., F.A.C.S. Associate Professor of Laryngology, Rhinology and Otology, University of Illinois College of Medicine; Otolaryngologist, Research and Educational Hospitals, Chicago, Illinois. Chicago: Year Book Publishers, Inc. 1943. Price \$5.00.

APPLIED DIETETICS. The Planning and Teaching of Normal and Therapeutic Diets. By Frances Stern, Chief of Frances Stern Food Clinic, The Boston Dispensary; Assistant in Medicine, Tufts College Medical School; Special Instructor in Dietetics in Social Service, Simmons College, The School of Social Work; Associate in Nutrition, Simmons College School of Home Economics. Second Edition. Baltimore: Williams and Wilkins Company. 1943. Price \$4.00.

ESSENTIALS OF DERMATOLOGY. By Norman Tobias, M.D., Senior Instructor in Dermatology, St. Louis University, Assistant Dermatologist, Firmin Desloge and St. Mary's Hospitals; Visiting Dermatologist, St. Louis City Sanitarium and Isolation Hospital; Fellow American Academy of Dermatology and Syphilology; Diplomate, American Board of Dermatology and Syphilology. Second Edition. Philadelphia: J. B. Lippincott Company. 1944. Price \$4.75.

Sociology and Social Problems, An Introduction to. A textbook for Nurses by Deborah MacLurg Jensen, R.N., B.Sc., M.A. Instructor in Sociology and Social Problems at Schools of Nursing of St. Louis City Hospital and St. Luke's Hospital; Lecturer in Nursing Education, Washington University; Formerly Social Service Consultant to the Visiting Nurse Association, St. Louis. Illustrated. Second Edition. St. Louis: C. V. Mosby Company. 1943. Price \$3.25.

CLINICAL AUDIOMETRY. By C. C. Bunch, M.A., Ph.D. Formerly Associate Professor of Otology, Medical School, University of Iowa; Associate In Research Otology, Johns Hopkins University, Professor of Applied Physics of Otology, School of Medicine, Washington University; Associate Director of Central Institute for the Deaf, St. Louis; Research Professor in Education of the Deaf, School of Speech, Northwestern University. With 74 text illustrations. St. Louis: C. V. Mosby Company. 1943. Price \$4.00.

Out of the Test Tube. By Harry N. Holmes, Ph.D. Oberlin College. Author of: Have You Had Your Vitamins? General Chemistry; Laboratory Manual of General Chemistry; Introductory College Chemistry; Outline of Qualitative Analysis; Introductory Colloid Chemistry; Laboratory Manual of Colloid Chemistry; Strategic Materials and National Defense; Co-Author of: Elements of Chemistry. Fourth edition. Revised and Expanded. 103 Illustrations. New York: Emerson Books, Inc. 1943. Price \$3.00.

THE JOURNAL

OF THE

Missouri State Medical Association

The Official Organ of the State Association and Affiliated County Societies
Issued Monthly under direction of the Publication Committee

COPYRIGHTED, 1944, BY MISSOURI STATE MEDICAL ASSOCIATION. ALL RIGHTS RESERVED.

VOLUME 41

APRIL, 1944

Number 4

RALPH L. THOMPSON, M.D., Editor RAYMOND McINTYRE, Managing Editor HELEN PENN, Assistant Editor 623 Missouri Bldg., St. Louis, Mo. Telephone, Newstead 0404-05 PUBLICATION | RALPH L. THOMPSON, M.D., Chairman | M. H. SHELBY, M.D. | COMMITTEE | R. C. HAYNES, M.D. | VINCENT T. WILLIAMS, M.D.

POLIOMYELITIS

LLOYD R. JONES, PH.D.

ST. LOUIS

Poliomyelitis, as a disease entity, probably has been recognized upon this continent for a century or more. Following the initial experiments of Landsteiner and Popper in 1908, who succeeded in transmitting the disease to monkeys by the intraperitoneal inoculation of spinal cord from a fatal case, it has since become well established that the etiologic agent is a virus. The diameter-size of the individual particle appears to be about twelve millimicrons. Accordingly it is one of the smallest of the agents known to be infective for man. It can be propagated only within living susceptible cells and invariably displays marked neurotropism.

The virus, as it is encountered in the spinal cord of its victims, the feces and nasopharyngeal washings of patients and carriers, appears to be infective only for the primates. Monkeys of the genus Macacus have been infected by subcutaneous, intraperitoneal, intravenous, intranasal, intrathecal and intraneural injections of the virus, also by inhalation of dispersed droplets of virus material. After adaptation in monkeys, however, infectivity of certain strains of the virus may broaden so that a paralytic disease may be reproduced in certain rodents. In 1939, Armstrong of the United States Health Service, in working with a human source virus which had been propagated in monkeys, was able to infect the cotton rat and, subsequently, to demonstrate infection in white mice with material derived from the rat. On the other hand, persistent efforts by capable workers have failed to transmit certain strains of the virus to any of these latter animals. To date it has not been possible to propagate the virus on the membranes associated with chick embryos-a living culture medium which has been used successfully in the propagation of many other neurotropic, viscerotropic and dermatropic viruses.

With reference to the transmission of the virus to man, one must regard as possible vendors of the infective agent those human beings who can be classified as: frank cases, abortive cases, and carriers which may be of two types, i.e., healthy and convalescent. No other reservoirs are known definitely to exist.

From these vendors, the infective agent may be discharged either by way of nasopharyngeal mucous droplets or by the feces. Virus has been demonstrated in each of these body excretions. Data are accumulating which suggest that the disease is primarily an infection of the alimentary tract with secondary localization in the central nervous system. It is conceivable and compatible with this concept and with knowledge of the viability of the virus that direct and indirect contact, under quite a variety of circumstances, may be involved in its transfer among human beings.

From careful studies which have been made relating to the epidemiology of outbreaks of the disease, there appears to be a tendency toward simultaneous onsets in first and second cases, suggestive of a common source of infection, and that the malady is more often derived from an unrecognized case rather than from a recognized one. It also has been indicated that successive virus reservoirs exist, each of short duration and each distributing virus to only a few persons. It appears likely, therefore, that a "carrier" state of short duration in a few individuals serves as the source of infection instead of (1) grossly contaminated extra-human reservoirs or (2) chronic "carriers" of the virus.

The possible role of water supplies in the dissemination of poliomyelitis has long been contemplated and with increased interest in the last few years incidental to the demonstration of: (1) copious amounts of virus in feces of patients and carriers; (2) isolation of the virus from city sewage, and (3) the demonstration that ordinary practices of large-scale water purification, involving alum precipitation with filtration and subsequent chlorination, can not be depended upon to destroy all of the virus which the water might contain.

In view of this it would seem that water supplies could transmit the infective agent; however, the occurrence of poliomyelitis does not conform to that of a water borne disease. In its epidemic and endemic incidence it does not appear to be related to water. When poliomyelitis invades a large urban center it manifests a slow radial or progressive

spread from an initial focus. When the disease occurs in rural areas it moves from place to place in an unpredictable manner but without relation to the character of the local private water supplies. While poliomyelitis conceivably could be spread by water, there is insufficient evidence to regard that means as being significant.

The question of insect vectors being involved in the spread of poliomyelitis has received considerable attention of late, particularly since certain investigators have been able to demonstrate in the case of another neurotropic virus disease, St. Louis type of encephalitis, that domestic fowls may serve as a reservoir of the virus and that transmission among these animals can be accomplished by at least three different genera of mosquitoes. Further, during the year 1941, two groups of investigators succeeded in demonstrating poliomyelitis virus within or upon flies trapped in the vicinity of known cases of the disease, occurring in Connecticut, Ohio, Georgia and Alabama. It has not been demonstrated whether or not the fly is a mechanical or biological carrier. In experiments made as early as 1911, it was shown that artificially contaminated flies could carry the virus for several days. If it should be shown subsequently that the fly is a biological type of carrier, i.e., an infected host of the virus, then considerable interest would naturally be attached to the question of whether or not the infective agent multiplies or increases in amount while sojourning in that species. A curious sidelight upon this question of the role of flies as carriers of the virus, and one for which no satisfactory explanation is available, is the wide spread failure of investigators in the year 1942 to repeat the successful experiments of 1941. It thus appears that at the moment one can ascribe no definite role to flies in connection with the dissemination of the virus of poliomyelitis.

SUMMARY

It may be said that human beings constitute the most important known reservoir of poliomyelitis virus. In this connection it is of interest to relate that since the blood of most adults contains neutralizing antibody for the infective agent and, if one is permitted to assume that its presence is due to a subclinical experience with the disease, then it appears reasonable to infer that the virus must be well nigh universal in its distribution. If this concept be granted, then it becomes more perplexing than ever to explain why certain individuals become candidates for the disease and to explain the increase in incidence which occurs in the late summer season.

"The League of Nations Monthly Bulletin for December presents tabular data on the expectation of life at birth and at 1 year of age in over thirty countries," The Journal of the American Medical Association for March 18 says. "For all countries covered the expectation of life at birth and in the earlier years of life is greater than in previous periods."

THE TREATMENT OF INFANTILE PARALYSIS

J. ALBERT KEY, M.D.

ST. LOUIS

It is convenient to discuss the treatment of infantile paralysis under four headings which correspond to the four recognized stages of the disease. These are (1) the acute stage, (2) the stage of tenderness and contracture, (3) the convalescent stage, and (4) the chronic stage.

1. The Acute Stage.—This is the febrile stage and it is during this period that the paralysis develops. The patient is ill with an acute infectious disease which involves the central nervous system and the treatment is largely symptomatic. The patient should be kept as quiet as possible and meddlesome therapeutics should be avoided. The bowels should be kept open, the nutrition maintained and pain controlled by sedation if necessary. The disease is self-limited. In many cases no paralysis occurs, in some it is mild and in a few it is severe. In a small percentage of the patients the respiratory muscles are affected so severely that a respirator may be necessary to save life and some patients die of respiratory paralysis. The morbidity and mortality vary in different epidemics.

The temperature usually subsides within three days after the onset of the paralysis and the acute stage is over.

2. The Stage of Tenderness and Contracture.—
The acute infection has subsided, the temperature is normal and there is no tendency for the paralysis to progress. In the nonparalytic patients the rigidity of the neck and back disappears spontaneously and these patients are kept in bed until they have recovered from their acute illness and then are permitted to resume their normal activities. They do not need any special treatment.

In the paralyzed patients, muscles of the affected extremities are tender and hypersensitive and the stronger muscles tend to contract and stretch the paralyzed muscles. The rigidity of the back tends to persist. The tender, painful muscles need immobilization and contractures should be prevented in order to protect the paralyzed muscles from stretching and to prevent deformities. Consequently, the affected extremities are immobilized in splints or casts in a neutral position (with the joints slightly flexed and the wrist dorsiflexed and the foot at a right angle). In order to prevent stiffness the splints or casts are removed once or twice a day and the joints are moved passively through as great an arc as is tolerated by the patient. Excessive pain is not produced and active movements and massage of the affected muscles are avoided because these tend to prolong the stage of tenderness and contracture.

The patient is maintained in the supine position on a firm bed until the rigidity of the spine has

St. Louis University School of Medicine.

From the Department of Surgery of the Washington University School of Medicine, St. Louis, Missouri.

subsided to a point at which he can begin to move it without undue pain. Then he is permitted to move about in bed or to sit up in bed, unless there is paralysis of the abdominal and back muscles. A board may be placed at the foot of the bed to prevent foot drop. He is rolled on his face twice a day for nursing care of the back. Some surgeons use hot packs three times a day or have the patient placed in a warm bath once a day for the relief of pain but, if the splints or casts are properly applied, these measures rarely are indicated.

Under this regime the pain, tenderness and tendency to early contracture subside relatively soon and this stage usually lasts from five to eight weeks, but in exceptional cases it may last as long as twelve weeks.

3. The Convalescent Stage.—This begins with the disappearance of the pain, tenderness and early contracture. All splints or casts are removed and the patient is encouraged to move about in bed and exercise his limbs in order to loosen up his muscles and joints. Once or twice a day he is placed in a tub of warm water and the paralyzed limbs are exercised in the water.

Some days later, or as soon as he has developed function in the nonparalyzed muscles, a muscle examination is done and stock taken of the patient's muscular system. This is necessary in order to determine what muscles are paralyzed and to plan the treatment during the convalescent stage. The paralysis is due to damage to the anterior horn cells which supply the muscles with motor impulses and its severity varies directly with the extent of the disease in the spinal cord. Some of these cells are killed while others are merely injured and rendered functionless but will recover and resume their normal functions. The killed cells will not be replaced and their function is permanently lost.

Consequently, the paralyzed muscles fall into three groups. In one group the motor cells are not killed but merely damaged and will return to normal. When these cells resume their function, the muscles which they supply will recover and no treatment is necessary to bring this about. In a second group the motor cells are killed and will not be replaced. Consequently, these muscles are paralyzed permanently and no treatment can do them any good. In the third group of muscles, some of the motor cells are killed and some are damaged and will recover. When the motor cells recover the muscles fibers which they supply will function. By muscle training one endeavors to develop the maximum power in that portion of the muscle which has a nerve supply. This is the group which is benefited by treatment. In the first group the paralysis is only temporary and treatment is not necessary; in the second group the paralysis is permanent and treatment is of no avail.

Since it is not possible at this time to determine which of the paralyzed muscles fall into each of the above groups, all are treated by muscle training and are protected from overuse and stretching. Protection is afforded by restriction of activity and by splints which are fitted, when indicated, for this purpose or to enable the patient to use the paralyzed limb more effectively.

Muscle training preferably is carried out by a skilled physical therapist but the mother or a nurse can be taught to carry out the prescribed treatment for a given patient in a fairly satisfactory manner. The involved muscles first are warmed by radiant heat, then massaged gently and the patient is instructed to carry out movements which will exercise the desired muscles. Depending upon the power present in the muscles, the movements are carried out with assistance, with gravity eliminated, against gravity or against resistance. Care is taken to avoid mass movements and muscle substitution and fatigue of the weak muscles. Muscles which may have become shortened by contracture are stretched as the paralyzed muscles are exercised.

At intervals of a month or longer muscle examinations and the ability to function and relative power of the paralyzed muscles are determined and recorded. Comparison of the results of these examinations enables the physician to determine the effect of treatment. When the power of a given muscle approaches normal, treatment of this muscle is discontinued. During this period the patient is up and may resume his normal activities unless he is handicapped too severely by the paralysis. Care is taken to avoid fatigue and stretching of the paralyzed muscles and, if necessary, braces are used to protect the paralyzed muscles and to enable the patient to use his paralyzed limbs more effectively.

The convalescent phase ends when repeated muscle examinations reveal that the muscles no longer improve in power in spite of persistent and careful treatment. It may last for two years, but most of the improvement occurs within the first six months. Part of this improvement is due to the treatment and part of it to the recovery and resumption of function of the damaged anterior horn cells.

4. The Chronic Stage.—This is the stage of permanent paralysis. Improvement in the power of the paralyzed muscles is not expected but certain deformities may occur as a result of muscle imbalance or abnormal weight bearing. The more important of these are scoliosis, flexion of the hip, genu recurvatum, shortening, calcaneus and other foot deformities. During this period braces may be continued in order to prevent deformities and to improve the function of paralyzed limbs. The patient's permanent condition is evaluated and, if necessary, he is trained for an occupation which he can carry on in spite of his handicap.

This is the orthodox treatment and when it is properly carried out approximately 80 per cent of the patients who develop infantile paralysis during an epidemic may be expected to recover to a point at which they are normal or practically normal. About 20 per cent of the patients will be crippled permanently to a variable degree, but only about 1 per cent will be crippled so severely that they will become wheel chair cases. It is well known that the severity of the disease varies considerably in

different epidemics. These figures are from three recent epidemics in which all cases were treated by orthodox methods and may appear startling to those who recall the many severely paralyzed patients who were left by the 1916 epidemic. There are two explanations. One is that the virus is losing its virulence and the character of the disease is changing for the better; the other is that diagnostic acumen is improving and now many nonparalytic cases and mild paralytic cases are being included which were not recognized and included in the older statistics.

Since the Kenny treatment is now being widely publicized at this time, it seems advisable to comment on this treatment. Miss Kenny claims to have discovered three cardinal symptoms of the disease and to have developed a treatment for these symptoms. It is her contention that orthodox treatment is wrong from start to finish because physicians have never seen the true symptoms of the disease and consequently have not treated them. These symptoms are muscle spasm, mental alienation and incoordination. Paralysis is admitted to occur but is believed to be of minor importance.

Investigation of the Kenny treatment leads me to conclude that Miss Kenny's three new cardinal symptoms are not new but are merely new names for symptoms which have been recognized and treated by the medical profession for many years. Muscle spasm is what is termed early contracture; mental alienation appears to include temporary and partial paralysis, and incoordination includes the mass movements and trick movements.

The spasm subsides with the pain and tenderness when the limbs are immobilized in properly fitting casts or splints and the mental alienation and incoordination are treated by physical therapists by muscle training.

The Kenny method treats the spasm by hot fomentations which are applied continuously for twelve hours a day and are renewed at intervals of from fifteen minutes to two hours, the frequency varying with the severity of the symptoms. The hot fomentations are continued until the spasm disappears. Mental alienation and incoordination are treated by muscle reeducation, which includes both active and passive movements of the limbs. The treatment is begun as soon as possible after the diagnosis is made.

I do not approve of the Kenny treatment for a good many reasons. The more important of these are as follows:

- 1. The application of continuous hot fomentations and the attempts to start muscle reeducation during the febrile stage are believed to be harmful in that they needlessly disturb a sick patient who needs rest and quiet and this disturbance may lower his resistance and lead to extension of the paralysis.
- 2. The Kenny method precludes the use of a respirator which may save lives.
- 3. The pain, tenderness and contracture (spasm) are relieved more quickly and more effectively by proper immobilization than by hot fomentations.

- 4. Deformities are prevented more easily and more effectively by proper immobilization than by the hot packs and the constant attention of a Kenny technician.
- 5. The Kenny method of instituting active muscle exercise during the stage of tenderness and contracture tends to prolong this stage.
- 6. The Kenny method does not protect the paralyzed muscles from stretching.
- 7. Patients with paralysis are maintained flat in bed in the normal standing position for many months and such patients are much more completely immobilized than they would be if treated by orthodox methods. I have seen such patients with marked contractures (spasm) of the thigh and leg muscles and rigidity of the back after from six to eight months of continuous Kenny treatment and could see no evidence that the treatment had had any beneficial effect on the paralysis.
- 8. I believe that the orthodox method of muscle training is simpler and more effective than the Kenny method of muscle reeducation.
- 9. Under the Kenny method muscle examinations are forbidden and no detailed record is kept of the original condition and progress of the patient.
- 10. The Kenny method forbids the use of splints which may protect paralyzed muscles, prevent deformities and increase the usefulness of paralyzed limbs.
- 11. The Kenny method has nothing to offer for the late effects of the disease, many of which are alleviated by orthodox surgical procedures.
- 12. The Kenny method is expensive in equipment, materials and manpower and will upset the entire routine of a hospital in which it is used on any considerable number of patients.
- 13. The Kenny method is a rigid regime which demands the services of a relatively large number of especially trained technicians for a given number of patients. Consequently, it is not suitable for use in an epidemic of any magnitude. The orthodox method is elastic and has weathered many epidemics.
- 14. I object to the Kenny propaganda which has misrepresented grossly the orthodox methods and results to the public.
- 15. Orthodox treatment of poliomyelitis is based upon known pathologic lesions which have been demonstrated repeatedly. The Kenny concept of the disease is based upon the belief that there is a condition in the muscles (apparently an acute inflammation and resultant spasm) which demands treatment. No primary pathologic lesions have been discovered in the muscles of patients or experimental animals ill with poliomyelitis.
- 16. From what has been said it is obvious that I consider the Kenny treatment of poliomyelitis a luxury treatment which, like some other luxuries, may actually do the patient more harm than good. Since there is no evidence that it lessens either the extent or the duration of the paralysis, I believe that physicians in Missouri should continue to use the less expensive orthodox treatment which in

three recent epidemics has been shown to result in the recovery of about 80 per cent of the patients. When and if it can be shown that any procedure employed in the Kenny method produces results which are better than those obtained by orthodox methods, then that procedure should be added to medical armamentarium.

4952 Maryland Ave.

POLIOMYELITIS

DAMON WALTHALL, M.D.

KANSAS CITY, MO.

HISTORY

The prevalence of poliomyelitis in epidemic form really began with the outbreak in Sweden and Norway in 1905 and 1906, then the New York epidemic of 1909 with from two to three thousand cases from July to October.

I think one of the things which might be considered is trying to make an early diagnosis and work out some satisfactory scheme of allaying the fear that has been promulgated among a large proportion of lay people by all the trick procedures that have been thrust upon them in the last few years. There was the time when chemical applications to the nose and throat were stressed with the idea that this would stop the spread of the virus through the nose and throat to the central nervous system. Now, Toomey, of Cleveland, and the late Dr. Trask, of New Haven General Hospital, and others have shown that the virus may invade the spinal cord from the gastrointestinal tract through celiac ganglion and sympathetic chains.

I would like to stress the idea of recognizing the early cases because that is what the general practitioner and the pediatrician (who is a general practitioner limiting himself to children) have to combat. They have the frantic mother to placate, and the problems of isolation and what one is going to do immediately with the case until it is ready to be turned over to the orthopedic surgeon. It seems to me that poliomyelitis might be defined as an acute infectious or communicable disease characterized by a febrile course with evidence of central nervous system involvement, particularly the spinal cord, accompanied in a variable proportion of cases by development of flaccid paralysis of irregular distribution and extent.

THE INCUBATION PERIOD

In animal experimentation there was a wide variance in some cases between the time of the onset of symptoms and the time they were artifically infected, this variation being from four to six to eighteen days. As the time of exposure varies it makes it very difficult to determine when the disease is most communicable. Some observers feel that the infectivity is at its height during the latter part of the incubation period and during the preparalytic period and, undoubtedly, the virus

Presented at the 86th Annual Session of the Missouri State Medical Association, St. Louis, April 18, 19, 20, 1943.

may be present for indefinite periods in the nose and throat. Therefore, the healthy carrier is a problem because of inadequate means of detection. However, most pediatricians feel that the disease is not readily communicable. That is a point I want to stress. If the patient is kept in bed, with some degree of isolation, cases of cross infection, either in hospital or home, are rare. Now cases are accepted only in isolation hospitals where formerly they were admitted on individual isolation to the general wards. Along this line of thought, when McKahn and Wilson did so much work in Boston on poliomyelitis cases, upward of one thousand cases, they saw only one possible patient to patient infection in hospitals. However, they observed that intimate contact increases the danger of transmitting the infection, as is shown by the incidence of the disease among nurses, where they observed six nurses acquiring the infection while caring for cases in the acute stage. Thus the difficulty of determining the period of infectivity is a serious handicap to the formation of adequate rules of isolation.

In epidemics, however, there are a few things that lay people should know and the National Foundation of Research on Infantile Paralysis has given this advice to the public. The mother should be advised to keep children away from crowds; they should play outside in plenty of sun and fresh air and follow this with plenty of rest. Other hygenic measures that should be stressed are washing hands before eating and cleanliness in preparing food and, in times of epidemic, both water and milk should be boiled. Fresh fruits and vegetables not cooked should be carefully scrubbed and great care should be taken in disposal of garbage and protection from flies.

The visiting nurse, or public health nurse, should be trained in the recognition of the early symptoms. They may assist in the early isolation of the children and directing them to proper medical care. The mother should be told to put to bed any child who shows signs of illness and also that the child should not contact other children in the family or neighborhood.

AS TO THE ONSET

The earliest symptoms are the several types of febrile reactions. This is not new but it is a matter of stressing it again and refreshing one's memory. About two thirds of the cases, during the preparalytic stage, run an ordinary fever with gradual or rapid increase in symptoms relative to the central nervous system. Paralysis, if it occurs, appears on the third to fifth day and may progress for from twenty-four to forty-eight hours. Fever is over in the seventh day. About one fourth of the cases have the dromedary type of febrile course. In this type there is a period of fever lasting from one to three days but no neurologic symptoms; then a period of from one to four days of wellbeing, after which occurs the secondary rise of temperature starting from four to seven days after the original onset of the fever symptoms. This second hump or second stage of the disease progresses as that described in the ordinary febrile course, but at this time the neurologic symptoms become quite outstanding. Another small percentage of cases have paralysis as their first and only symptoms. However, these cases probably represent instances of the ordinary course of the disease in which the usual early symptoms are not recognized because of inaccurate observations by the mother of these very mild febrile and meningeal symptoms.

WITH RESPECT TO THE VARIOUS TERMS USED IN THE DISEASE

The paralytic course is self-explanatory: the patient becomes paralyzed to a greater or lesser degree with little or complete recovery. The nonparalytic course is one in which the typical onset takes place with evidence of neurologic involvement, accompanied with characteristic cerebrospinal fluid changes. Holt's textbook as far back as the 1912 edition of "Pediatrics" says, "The recognition of acute poliomyelitis before the occurrence of paralysis is impossible except by lumbar puncture." The spinal fluid changes are as follows: (a) the pressure is increased, (b) the cerebrospinal fluid cells are increased and vary from 30 to 500 and rarely the increase is to 1,000 or more. There is an increase of protein and globulin and this is probably the most consistent test that one meets. early as well as late in the disease. Even with all these symptoms and signs no paralysis appears in the nonparalytic cases. Although no accurate data is available a relatively high percentage of cases are in this nonparalytic group. I have had a feeling that poliomyelitis is a systemic disease, just as meningitis starts as a blood stream infection and then finally the central nervous system is involved. There is no way of diagnosing these cases except as they occur during epidemics. One may have two children in one family and in one instance I had twin patients starting with exactly the same symptoms. One went on and had definite paralysis and the other had no signs of paralysis. This large group of nonparalytic or abortive cases no doubt explains the widespread immunity of adults to the disease.

SYMPTOMS AND SIGNS

Now to consider the symptoms and signs in more detail: (a) In the abortive case there are no characteristic symptoms or signs and these cases are suspected mainly in times of epidemics and, as mentioned before, spinal fluid may be normal. (b) The symptoms and signs in the preparalytic stage, the significant features, are fever, flushed face, excessive perspiration, headache and quite definite vasomotor changes-pain on flexion of the neck and pain in upper back, which is the outstanding feature in these early cases. Later, there is a fine tremor, but the most characteristic feature is the pain in neck and back and especially the patient carefully protects the back. Characteristic changes in the spinal fluid clinch the diagnosis. (c) In the paralytic stage the tremor or muscle tenderness

may be an important forerunner of real paralysis; also weakness and a slight limp may be noticed with the ordinary technic of examination. In the child one of the first symptoms will be that he falls and the mother often interprets this fall as the cause of his illness. Paralysis is greatest just before the end of the febrile stage and thereafter any change is in the direction of recovery.

The most alarming situation is when the poliomyelitis patient presents difficulty of respiration. This happens in three possible ways: first, directly as diaphragm and intercostals are out of function by actual paralysis of the primary respiratory muscles; second, directly by disturbance of the nerve centers in the medulla which controls respiration; third, indirectly, by paralysis of the pharynx causing an inability to swallow with an accumulation of mucus and vomitus. In these cases the respiration becomes very difficult and the respirators certainly are life savers in some instances. The main difficulty is that the respirators are expensive and hard to manage and their value in treatment is much overrated.

To sum this up, if one can induce the doctors to make an early diagnosis and be interested in spotting these cases early, then if spinal punctures are had in the early cases to prove the diagnosis and institute early treatment I believe it would help a great deal. Of course, it is well to remember that lumbar puncture may be too early and again it may be too late to be of diagnostic value because the increased cell count in the spinal fluid is of short duration but the positive globulin test may prove the case because it stays positive over a longer period of time.

TREATMENT

First, not much has been able to be done about passive immunization. The only thing is to keep the child in as good health as possible and prevent contact with suspected carriers. Second, the treatment of the acute cases in the preparalytic stage is still open to discussion. In 1912 in Holt's text he mentions that in animal experimentation if urotropin was given simultaneously or shortly after the injection of the virus in many instances no paralysis follows. Its curative effects in man have not been demonstrated. The administration of convalescent serum is the treatment of choice. Then, next, attempt is made to reduce the edema of the brain and cord with 50 per cent glucose intravenously, or from 10 to 15 per cent saline intravenously and, while I am sure in some cases convalescent serum has not stood up very well, I would be very grateful if I had convalescent serum available to use in all positively diagnosed preparalytic patients to prevent as much of the spread of the paralysis as possible.

In a textbook, "Index of Treatment," edited back in 1907 to 1912 hot applications over the spine and support of the limbs was recommended during the acute stage, and during the recovery stage electricity—warmth—warm baths—maintain warmth of

limbs with wool. This is very much as is done now in the third stage. Third, when the patient shows definite evidences of paralysis effort must be to support his extremities in a way that he will be as comfortable as possible and apply hot packs by the method now known as the Kenny treatment.

I do not know whether these few remarks will be of any constructive help in the next polio epidemic but if one can diagnose the case early, and cut down a little of the fear of the lay person in regard to this disease, I think the handling of these cases will be a little easier.

315 Alameda Road.

CASE REPORTS OF BARNES HOSPITAL

CLINICAL AND POSTMORTEM RECORDS USED IN WEEKLY
CLINICOPATHOLOGIC CONFERENCES AT BARNES
HOSPITAL, ST. LOUIS

W. BARRY WOOD, JR., M.D., AND ROBERT A. MOORE, M.D., Editors

CASE 43

PRESENTATION OF CASE

P. L., a 54 year old housewife, entered Barnes Hospital for the third time on November 7, 1943, at 11:50 a. m., and died at 6:15 p. m. that day.

First Hospital Admission.—May 21 to June 1, 1923.

Chief Complaint.—Irregular menstruation. Family History.—One brother had epilepsy.

Past History.—Other than the usual childhood diseases, the patient had always been in good health. She had had six pregnancies. She lived on a farm and financial circumstances were adequate.

Present Illness.—For the last two years menstrual flow had increased and the interval between periods had gradually become shorter.

Physical Examination.—The only abnormal finding was a cervical polyp.

Laboratory Findings.—Blood count: red cells 2.980,000, hemoglobin 75 per cent, white cells 6,300. Urinalysis was normal.

Course in Hospital.—A dilatation and curettage of the uterus was performed. Sections of tissue revealed no significant findings. The patient made an uneventful recovery.

Second Hospital Admission.—April 16 to May 3, 1938.

Interval History.—The patient apparently had been in good health for the last fifteen years with the exception of menstrual difficulties. Her periods occurred at two or three month intervals with profuse bleeding. After cessation for six months, hemorrhage recurred and was continuous for two weeks previous to admission. She had recently developed boils in her right ear, right eyelid and beneath the right arm.

Physical Examination.—Temperature was 37 C., pulse 88, respirations 18, blood pressure 160/120. The patient was obese (183 pounds) but did not ap-

pear to be ill. There was a subsiding furuncle on the right lower eyelid and another in the right external auditory canal. The pupils reacted to light and accommodation. The teeth had been replaced by dentures. The lungs were clear. The heart showed no abnormalities. A small tumor was felt in the midline just above the symphysis pubis. Pelvic examination was deferred. There were numerous varicose veins in both legs.

Laboratory Findings.—Blood count: red cells 4,-600,000, hemoglobin 80 per cent, white cells 5,650. Urinalysis: specific gravity 1.030, albumin plus, sugar negative, microscopic negative. Blood Wassermann, negative. Gonococcus complement fixation test, negative.

Course in Hospital.—Through a lower midline abdominal incision, the uterus was found to be enlarged with myomas and subinvolutional changes. Both ovaries appeared senile. A subtotal hysterectomy was performed. Pathologic findings were reported as chronic endometritis and adenomyosis of the uterus. The patient made an uneventful recovery.

Third Hospital Admission.—November 7, 1943. Interval History.—(Secured from husband.) About one year prior to admission the patient, who periodically tested her diabetic husband's urine for sugar, tested her own urine and found sugar also. She refused to seek medical advice. About six months later she complained of fatigue which persisted. Five weeks before admission a boil which rapidly increased in size developed on the back of the neck. This was treated unsuccessfully by a neighbor. During this period, increased thirst and urinary frequency were evident. A few days previous to entrance, the patient developed rapid, deep respirations, became confused and mentally obtunded. A local physician found sugar in the urine, dressed the lesion on the neck and sent the patient to the hospital.

Physical Examination.—Temperature was 36.8 C., pulse 130, respirations 32, blood pressure 110/80. When one approached the bedside, the odor of acetone was apparent. The patient appeared somewhat obese and older than her stated years. She was quiet, semistuporous and breathed rapidly and deeply. The skin was dry, thick and wrinkled. A large sloughing carbuncle 4 by 8 cm. in diameter with undermined edges had penetrated to the deep fascia on the back of the neck. The eyes were staring and on pressure were soft. The pupils reacted and the fundi were normal. The mouth was edentulous, the tongue very dry and the pharynx slightly injected. The lungs were clear. The heart was not enlarged; the rate was 130, the rhythm regular. No murmurs were heard. Other than a suprapubic midline scar, the abdomen was normal. The feet were cold. Arterial pulsations were present but diminished. There were varicose veins in the

Laboratory Findings.—Blood count: red cells 3,-800,000, hemoglobin 12.3 grams, white cells 16,000;

differential count: "stab" forms 27 per cent, segmented forms 61 per cent, lymphocytes 12 per cent. Urinalysis: specific gravity 1.025, albumin plus, sugar 4 plus, acetone 4 plus, microscopic negative. Blood sugar was 488 mg. per cent, CO₂ combining power 18.6 vol. per cent. Nonprotein nitrogen was 24 mg, per cent. Kahn test was negative. Culture from carbuncle grew hemolytic staphylococcus aureus. Electrocardiogram showed supraventricular tachycardia with ventricular premature contractions, and probable posterior myocardial in-

Course in Hospital.—Insulin was injected immediately (12 N), 25 units intravenously and 25 units subcutaneously, and 1,000 cc. of physiologic saline solution containing 5 per cent glucose were given by infusion. At 2:00 p. m. the blood sugar was 648 mg, per cent. An infusion of 1,000 cc. of physiologic salt solution was begun. At 2:30 p. m. the patient was in deep coma. Rales were heard over the left base and right lower axilla. The extremities were cold. At 4:00 p. m., 25 units of insulin and 300 cc. of one molar lactate were given intravenously, and 1,000 cc. of 5 per cent glucose in water were injected subcutaneously. The patient failed to rally. At 5:15 p. m. she was in obvious shock and responded to no stimuli. The blood pressure was 60/30. Respirations were 10 per minute. Coramine was administered and plasma infusion begun. The patient died during its administration.

CLINICAL DISCUSSION

DR. HARRY ALEXANDER: This patient with obvious diabetes and acidosis was treated in the hospital with emergency measures, but in spite of them rapidly declined and died within seven hours. The question that concerns us is why she died. The answer involves certain fundamentals of glycogenesis and the mechanism of acidosis. In order to have an authoritative expression of opinion on these subjects we have asked Dr. Cori to come here and tell us about them.

Dr. Carl Corl: I might begin by telling what happens to glucose in the normal animal. If one feeds a normal animal glucose, one can measure how much of it is deposited as glycogen and how much is stored as fat. One finds that in an animal that has previously been deprived of carbohydrate for some time, about 50 per cent is turned to glycogen and another 50 per cent is oxidized. Deparcreatized dogs excrete ingested sugar almost quantitatively in the urine—about 90 per cent. If both the pituitary and the pancreas are removed the diabetes is of a milder type but the utilization of ingested sugar is very poor. As is well known, the injection of insulin will correct these disturbances. When insulin is given to a diabetic dog, the blood sugar falls rapidly and the liver glycogen, which is usually low, rises; and if then sugar is administered, decreasing amounts of glycogen are deposited in liver and muscle.

The ketone bodies are formed in the liver and as long as the liver can oxidize carbohydrate it will do so, and the break-down of fat in the liver will be low. But when the carbohydrate oxidation becomes diminished, fat replaces carbohydrate and the liver forms ketone bodies from fatty acids. The liver does not have an enzyme system for the disposal of these ketone bodies and so the liver, in a diabetic dog, forms not only an excessive amount of sugar but also an excessive amount of ketone bodies. If one injects insulin and reestablishes carbohydrate oxidation, the break-down of fatty acid diminishes and ketosis disappears.

The principal difficulty in determining the mechanism of insulin action is that it has been impossible so far to demonstrate any action of insulin in vitro. One knows fairly well the various enzymatic processes which are involved in the conversion of glucose to glycogen or in the complete oxidation of glucose. But when one adds insulin in vitro while enzymatic processes are going on, one can demonstrate no action. In the intact animal one cannot delineate the mechanism because only the over-all effects can be observed, and it is impossible to determine which of the intermediary steps might be concerned with insulin.

It has always been my belief that insulin has something to do with the first step of glucose utilizationsomething to do with the uptake of sugar by the tissues. But as yet one cannot present a definite answer to the question of how insulin acts. One can, however, de-

scribe its effect very well.

One point I would like to make in connection with this case is that there are various experimental conditions under which insulin fails to produce its usual effects. If rabbits are injected with diphtheria toxin and then with insulin one does not get the usual hypoglycemic response. The injection of typhoid vaccine produces less effective response to insulin, and inordinately large doses may be necessary in such a case to produce hypoglycemic action. An extract can be prepared from the anterior pituitary which antagonizes the hypoglycemic action of insulin. There is as yet no satisfactory explanation of why insulin fails to act under these experimental conditions.

Dr. Alexander: When ketone bodies are made by the liver and there is no specific enzyme in the liver, are

they free or do the muscles oxidize them?

Dr. Cori: The muscle can oxidize ketone bodies well, and this oxidation also can take place in diabetic dogs, but the production in the diabetic liver exceeds the utilization of ketone bodies in the muscle.

Dr. Edwin Krebs: What happens to heart muscle glycogen and skeletal muscle glycogen in a depancre-

atized dog?

Dr. Cori: In a depancreatized dog, the heart muscle glycogen may be higher than normal. The heart muscle of the diabetic dog has not completely lost the power of glycogen storage. In skeletal muscle the glycogen content is lower than normal. If one stimulates the muscle of a diabetic animal the transformation of glycogen to lactic acid takes place, and following stimulation some glycogen is regained. Here one sees that some glycogen formation can take place. That mechanism is not disturbed, but what seems to be disturbed is the uptake of sugar from the blood. The diabetic dog has blood sugar levels of 350 or so. If one raises the blood sugar level to 1 per cent, one can force some glycogen deposition in muscle. But ordinarily very little or perhaps no blood sugar is converted to muscle glycogen.

DR. ALEXANDER: To resume the problems in this case, the question arises as to why this patient did not respond to insulin. Dr. Cori brought up the point that in the presence of infection a great deal more insulin than would conventionally be given is often necessary. Dr. MacBryde, what is your feeling about this? This patient received 25 units intravenously and 25 units subcutaneously. Do you believe this was the proper

dosage?

DR. CYRIL MACBRYDE: It is true that in the presence of diabetic coma or severe acidosis insulin does not work nearly as well as it does in patients who are not in acidosis. Sometimes it takes huge amounts to produce any change. There must be something interfering with the action of insulin in these states. Sometimes within twenty-four hours the patient becomes three or four times as sensitive to injected insulin. However, I might point out that not only is the reaction to insulin important but, also, what happens to the patient during the coma.

DR. ALEXANDER: Before we go into that, let us finish discussing insulin dosage. Is there any conventional rule as to how much insulin should be given to a patient in coma?

DR. MacBryde: There is every shade of opinion. You can find those who believe in giving 100 units to every patient in coma immediately. Others have a method for determining from the blood sugar and the amount of circulating blood and tissue fluid how many grams of sugar are to be oxidized. I believe there is no one rule of thumb which is applicable. There are different considerations in each case. I usually tell students to begin, as in this case, with 50 units, and then within an hour to judge the next dose by the effect obtained with the initial dose. It was found in a recent survey that it took on the average about 200 units of insulin within the first twenty-four hours to bring a patient out of coma, but the variation was from as little as 40 units to as much as 1,200 units.

Dr. Alexander: Dr. Olmsted, have you a rule?

Dr. William H. Olmsted: I would not hesitate to give 100 units if the patient were frankly in acidosis. But the control of the amount of insulin to be given lies in the blood sugar. After the first 50 or 100 units have been given, the blood sugar must be watched. If it has fallen, the dose may be presumed adequate. But if, as in this case, it has risen, I should not hesitate to double or triple the initial dose, and then take another blood sugar determination. That is the only way to deal with some of these puzzling cases in which the patient is very resistant to insulin. These patients will die unless the insulin dose is increased tremendously when the blood sugar does not respond.

DR. ALEXANDER: Dr. Bulger, what is your practice?
DR. HAROLD BULGER: I think that a patient very ill with diabetic coma should be given 100 units immediately, at least half of it intravenously.

DR. ALEXANDER: Dr. MacBryde, you were about to

speak of other factors in diabetic coma.

Dr. MacBryde: I was going to make the point that it is not entirely the response on the part of the patient to injected insulin that determines whether or not one can bring him back from his precarious state. This patient was apparently semicomatose for over two days before she got to the hospital. She was in deep coma when I saw her, although she could be aroused. I have never seen any patient who has been in coma for that long recover with any form of treatment. It was my duty to speak to the relatives of this patient, and on the basis of my clinical experience I told them that I thought the patient would die. This tendency is apparently not the result of the failure of such patients to respond to insulin, because sometimes their blood sugar can be brought down and their blood chemistry restored to normal, but still they die. In my experience a patient who has been in coma for twelve hours or more will die, and a patient who has been in coma for eight hours has a fifty-fifty chance.

DR. ALEXANDER: When the patient entered she received saline and glucose solutions. What is your opin-

ion of this procedure?

DR. MACBRYDE: I am not sure that I would have given glucose. I think this patient probably had plenty and did not need more at that time.

Dr. ALEXANDER: She also received lactate and saline solutions.

DR. MacBryde: I think physiologic saline solution gives an adequate amount of base and fluid to combat dehydration. Such patients need sodium because they have lost tremendous amounts. They need water and chlorides. There is some evidence that lactate will restore the carbon dioxide combining power and relieve acidosis somewhat more quickly than physiologic saline,

but in our experience physiologic saline is quite adequate

DR. ALEXANDER: Are there any other questions on this point? Dr. MacBryde has felt that this patient died because she had been in acidosis so long. Is there any other mechanism that might have occurred, Dr. Wood?

DR. W. BARRY WOOD: The electrocardiogram was abnormal and suggested that the coronary circulation

might have been disturbed.

DR. ALEXANDER: On this patient's second admission she had a blood pressure of 160/120. She was obese. On her last admission she was in shock and her blood presure was reduced to 110/80. It is commonly believed that diabetes leads to an atherosclerosis and possibly to coronary disease. Do you suspect she had infarction and, if so, when did the coronary occlusion occur?

DR. Edward Massie: In this patient there are many features that prevent us from being dogmatic. The record was interpreted as probable posterior myocardial infarction. This is "probable" because there are certain other conditions that could have produced electrocardiographic abnormalities in this patient, such as an abnormal tachycardia. In patients who have damaged hearts one can see electrocardiographic changes similar to this. This patient had coronary artery insufficiency. Acute tamponade will reduce coronary blood flow, and severe anemia, or diabetic acidosis, may tend to produce a similar record. From the facts in this case and the electrocardiographic findings we may deduce that the patient had acute recent posterior infarction.

DR. OLMSTED: Could the changes have resulted from pericarditis?

DR. Massie: They certainly could. Acute pericarditis will cause a decrease in coronary blood flow, and the reason I adhere to posterior myocardial infarction is that the changes are a little more typical of that condition.

DR. ALEXANDER: Dr. Sobin informed me that the administration of insulin may affect the heart.

Dr. Sidney Sobin: All sorts of cardiac changes have been described following the administration of insulin to elderly patients with atherosclerosis. Various types of tachycardias, changes in conduction and changes in the electrocardiogram have been found. Clinically, patients frequently have angina pectoris following insulin administration and, when given insulin for the first time, a patient may have a coronary occlusion.

DR. ALEXANDER: Dr. Cori, you stated that the heart need not be depleted of glycogen. Do you imply that it may be?

DR. CORI: In the diabetic dog the glycogen of the heart is higher than normal.

Dr. Alexander: Is there any indication about human heart glycogen?

DR. CORI: Yes, I think the heart in human diabetic patients has a fair amount of glycogen, but the heart will suffer from hypoglycemia even if there is glycogen present in the heart muscle.

Dr. Bertrand Glassberg: I would like to ask Dr. Mac-Bryde what happens to the potassium in a patient with diabetic coma

DR. MacBryde: The potassium may be elevated and may fall with insulin administration. It follows the blood sugar curve, more or less. No doubt you are thinking that this picture approximates the picture of Addisonian crisis, which it does in many respects. But it is also the type of picture seen in patients who die with diabetic coma.

STUDENT: I would like to ask Dr. Massie if the disappearance of the P wave could be explained on the basis of decrease of potassium—assuming it to have been elevated?

Dr. Massie: Yes, it could. But I see no reason to pick out potassium as the causal agent among the many other things that could produce such changes.

Dr. MacBryde: A year or two ago there was a series reported of seventeen diabetic patients in whom electrocardiographic tracings were done. Fourteen had changes that could be interpreted as severe coronary disease or coronary infarction, and practically all of these cleared up after treatment.

DR. LAUREN ACKERMAN: In a patient such as this one, infection plays a role, and I wonder whether or not blood cultures were taken and I also wonder if there was any renal damage.

Dr. Alexander: No blood cultures were taken—the

patient was in the hospital only seven hours.

Dr. Olmsted: This patient was 54 years old. Patients of that age do not go into coma very easily, in fact older patients go into coma with great difficulty. The coma was not so very severe because the carbon dioxide combining power was not greatly reduced, and the nonprotein nitrogen, which in coma usually is elevated, was normal. I think we have not given sufficient emphasis to the fact that this woman had a large sloughing carbuncle and may well have had a septicemia. I also wonder if she might have had a pyemia and an abscess in some vital organ, possibly the brain. Dr. MacBryde spoke of her coma lasting for several days, but it is possible that we are dealing with a brain abscess. A purulent pericarditis, causing the electrocardiographic changes, is not outside the realm of possibility.

DR. ALEXANDER: That is a very good suggestion. Staphylococcus aureus was cultured from the carbuncle. This patient's organs will soon be shown to us. Will the islands of the pancreas show changes, Dr. MacBryde? In what percentage of cases does one find island changes?

DR. MACBRYDE: I suspect that the changes in the pancreas will be minimal, or there may be no altera-

tion.

Dr. Olmsted: I believe that in 75 per cent of cases there are changes. In only 25 per cent are there no alterations.

DR. MacBryde: It depends upon what you mean by changes. Changes diagnostic of diabetes are seldom found. The changes that are found in 75 per cent may also be found frequently in persons without diabetes.

DR. ALEXANDER: There may be septicemia or myocar-

dial changes. Will other organs show change?

Dr. GLASSBERG: The kidneys. One might find a nephrosis or cloudy swelling because the patient died of diabetic coma. In advanced diabetic coma kidney changes are very frequent.

Dr. Alexander: Would they not have revealed them-

selves in the urine?

Dr. Glassberg: I wonder if she excreted much urine. I am amazed at a nonprotein nitrogen of 24 mg. per cent in a woman in coma for three days.

Dr. Alexander: Dr. Bulger, will there be changes in

any other organs?

Dr. Bulger: She will probably have a fatty liver and glycogen deposition in the liver.

CLINICAL DIAGNOSIS

Diabetes mellitus.
Diabetic acidosis and coma.
? Acute myocardial infarction.
Carbuncle of neck.

DR. ALEXANDER'S DIAGNOSIS

Diabetes mellitus with acidosis. Pyemia.

ANATOMIC DIAGNOSIS

Carbuncle of the neck. Fatty degeneration of liver, moderate.

Arteriosclerosis of aorta, moderate, of pulmonary and coronary arteries, slight.

Focal fibrosis of pancreas, advanced, with metaplasia of pancreatic ducts.

Hyalinization of islets of pancreas.

Glycogen vacuoles in epithelium of renal tubules and in nuclei of liver.

Fatty degeneration of renal tubules. Intercapillary glomerulosclerosis, slight.

PATHOLOGIC DISCUSSION

DR. MARGARET SMITH: There was only slight arteriosclerosis of the coronary arteries and no evidence of infarction or other recent anatomic change in the heart muscle. Staphylococcus aureus hemolyticus was cultured from blood taken at autopsy. No abscesses other than the carbuncle of the neck were found. Hyalinization of the islets of the pancreas which was present in this case is most common in older diabetic patients. In material studied by Warren the pancreatic islets showed hyalin in 6 per cent of diabetic patients under 40 years of age while it was present in the islets of 45 per cent of diabetic patients more than 40 years of age. Hyalinization of the islets of the pancreas also was found in from 2 to 3 per cent of nondiabetic patients. Therefore this lesion may be considered suggestive but not conclusive evidence that diabetes has been present.

CASE 44

PRESENTATION OF CASE

V. W., a 15 year old boy, entered the Barnes Hospital for the first time July 5, 1932.

Chief Complaint.—Swelling of the left knee.

Family History.—Irrelevant.

Past History.—Other than pertussis and measles,

the patient had had no significant illnesses.

Present Illness.—In March, 1929, the patient struck his left knee on an iron post. The contusion became infected, the lesion was incised several times and, then, apparently healed. In May, 1930, the patient developed fever and one month later entered Children's Hospital in a delirious condition. A mastoiditis was found and a mastoidectomy was performed. An osteomyelitis of the left thigh was discovered and drainage was established. One month later (July, 1930) the posterior aspect of the left thigh became involved and was drained. In August, 1930, the thigh was again incised for an infection. In September, 1930, the patient was sent to Ridge Farm. In November, 1930, he reentered Children's Hospital with swelling, redness and tenderness of the left knee. No operation was performed and the patient was returned to Ridge Farm in January, 1931. In February, 1931, the left thigh was widely incised in order to drain the osteomyelitis which had persisted. In May, 1931, osteomyelitis of the left elbow developed and the lesion was drained. The patient was then sent back to Ridge Farm. In August, 1931, September, 1931, and March, 1932, similar operations were performed on the left shoulder, a rib on the right side and on the right thigh. The patient returned home on crutches. He went to school and was seen from time to time in the Orthopedic Clinic. During this interval, some of the sites of incision continued to drain. In July, 1932, the patient entered Barnes Hospital because of swelling of the left knee.

Physical Examination.—Temperature was 37.8

C., pulse 110, respirations 28, blood pressure 100/70. The significant findings were: evident loss of weight, scars of previous operations, some atrophy of the muscles of the right arm, impairment of motion of the left hip joint, and redness, swelling and tenderness of the left knee.

Laboratory Findings.—Blood count: red cells 4,000,000, hemoglobin 60 per cent, white cells 10,000. Urinalysis, normal. Kahn test, negative. Roentgenograms of the lower left femur revealed osteomyelitis.

Course in Hospital.—An incision was made over the medial side of the left femur. The bone beneath the incision appeared somewhat roughened but no pus was discovered under the periosteum.

Subsequent Hospital Admissions.—The patient was readmitted to the hospital fifteen times between July, 1932, and December, 1943. On each admission operations were performed for acute exacerbations of osteomyelitis. Other diagnoses included congenital cyst of the lung, chronic bilateral ostitis media and chronic glomerulonephritis which first appeared in December, 1942. In February, 1943, the following laboratory findings were recorded: Urinalysis revealed 3.5 grams of albumin excreted in twenty-four hours and many hyaline casts. The red blood cells were 3,450,000, hemoglobin 10.5 gms., white cells 18,000, and hemogram within normal limits. Culture of pus revealed hemolytic staphylococcus aureus. In March, 1943, an amputation of the left thigh was performed. Following this operation, large amounts of albumin persisted in the urine. Further laboratory data recorded the nonprotein nitrogen to be 29 mg. per cent, urea clearance test within normal limits, total blood proteins 4.5 grams per cent, albumin 2.0, globulin 2.5, blood chlorides 708 mg, per cent, Kahn reaction negative and Congo red retention 33 per cent at the end of one hour.

The last admission to the hospital was December 10. 1943.

Interval History.—Since the previous admission the predominating symptom had been fatigue which persisted and, three weeks before admission, pain over the end of the stump of the left femur which gradually increased in intensity. The patient was transferred to the medical service shortly after entrance to the hospital.

Physical Examination.—Temperature was 38 C., pulse 92, respirations 20 and blood pressure 100/65. The patient appeared pale, fatigued and chronically ill. There were numerous scars of previous incisions over his extremities. The pupils were equal and regular and reacted well. The fundi showed some tortuosity of the retinal arteries. There were no hemorrhages or exudate. There was bilateral impairment of hearing. The tonsils were atrophic. Over the right chest were diminished tactile fremitus, breath sounds and voice sounds. Percussion note was not impaired. The heart was in the fifth left interspace 7 cm. from the midsternal line.

There were no thrills or murmurs and the rhythm was regular. The liver was palpable 7 cm. below the right costal margin. The spleen was just palpable beneath the left costal margin. The spleen was slightly enlarged but symmetrical and smooth. The left thigh and leg were missing except for a high stump. The peripheral end of the stump was very tender and painful but there was no redness or swelling. Reflexes were present and physiologic.

Laboratory Findings.—Blood count: red cells 3,-720,000, hemoglobin 10.7 grams, white cells 23,200; differential count: basophils 1 per cent, metamyelocytes 5 per cent, segmented forms 83 per cent, lymphocytes 6 per cent, monocytes 5 per cent, platelets 654,700. Sternal marrow count: eosinophils 3 per cent, "C" myelocytes 44 per cent, metamyelocytes 10 per cent, band forms 7 per cent, segmented forms 22 per cent, primitive cells 11 per cent, plasma cells 4 per cent, normoblasts 20 per cent, early erythroblasts 2 per cent, late erythroblasts 3 per cent, 25 red blood cells per 100 white blood cells. Urinalysis: specific gravity 1.017, albumin 2 plus, reaction alkaline; microscopic, loaded with red blood cells and white blood cells. Blood chemistry: chlorides 483 mg. per cent, proteins 5.6 mg. per cent, albumin 2.5, globulin 3.1, nonprotein nitrogen 77 mg. per cent, urea clearance 19 per cent of normal, calcium 11.3 mg. per cent, phosphorus 17.2 mg. per cent, phosphatase 2 units, CO₂ combining power 56.4 vol. per cent. Venous pressure: 65 mm. of saline. Formol gel test was negative. Water flocculation test was negative. Cephalin flocculation test, plus. Prothrombin time, 23 seconds, control, 25 seconds. Culture of urine showed Staphylococcus aureus hemolyticus. Congo red test, no dye detected in the blood one hour after injection.

Course in Hospital.—The day following admission the patient developed symptoms of shock—profuse sweating, cold clammy skin, pulse rate 120, blood pressure 72/54. He complained of muscular cramping in the right leg. He was given 10 cc. of adrenocortical extract intravenously and 2,000 cc. of physiologic saline solution. He responded well to this treatment and recovered from symptoms of shock. It was discovered at this time that on discharge from the hospital in May, the patient had been placed on a diet low in chlorides. Because of the infection, he was given sulfanilamide. He was soon unable to retain the drug and because of renal complications, sulfonamide drugs were discontinued. Soon after admission, the patient began to vomit and this was difficult to control. The vomitus had a coffee ground appearance. Guaiac test was 2 plus and chlorides 1 plus. On December 28, the nonprotein nitrogen was 91 mg. per cent; chlorides 530 mg. per cent. On December 29, a localized fluctuant area appeared at the end of the stump. This was exquisitely tender to the touch. It was incised and a large quantity of pus under pressure was released. Hemolytic staphylococcus aureus was grown on culture. On that day, stool examination showed a 4 plus guaiac. Urinalysis revealed a pH of 8, 2 plus albumin, no white blood cells, red blood cells or casts. The following day there was edema of the ankle, leg and scrotum. Fluoroscopy at that time revealed the left diaphragm to be elevated but both sides moved with respiration and the cardiac silhouette was within normal limits. The entire left lung field appeared lighter than the right. Blood count then showed red cells 2,650,000, hemoglobin 9.5 grams, white cells 36,400; hemogram showed a marked shift to the left. Blood nonprotein nitrogen was 105 mg. per cent, proteins 4.1 grams per cent, albumin 2.4, globulin 1.7, chlorides 575 mg. per cent. On December 30, it was noted that the patient was growing steadily worse. After his initial good response to replenishment of chlorides, he began to vomit again in spite of an intake of 9 grams of sodium chloride per day. Edema was marked. Temperature subsided somewhat following incision of the abscess. On that day a loud pericardial friction rub was audible over the precardium and marked lid lag and stare were noted. Twitching of the hands, arms and leg occurred. This was associated with a feeling of numbness. There was no Trousseau sign. The venous pressure was 120 70. The following day the patient complained of more numbness of the hands and foot and he had chronic contractions of the arms. Later that day, asthmatic breathing developed which did not respond to intravenous injection of aminophyllin nor to calcium gluconate. The patient was extremely apprehensive and was given 15 cc. of paraldehyde by rectum. The following day a roentgenogram of the chest showed a marked increase in the size of the heart. Four units of digifolin were given intramuscularly. On December 31, the blood calcium was 7.2 mg, per cent, phosphorus 19.0. Calcium gluconate given intravenously and paraldehyde were continued. On January 1, 1944, the patient was more quiet and clonic movements of the foot were infrequent. On January 2, after the patient had not voided for twentyfour hours, catheterization produced 200 cc. of slightly turbid urine. At 2:00 p. m. on that day the patient became very restless again and many jerking movements developed. These were diminished by calcium gluconate. A troublesome cough appeared with production of a moderate amount of mucopurulent sputum. Many coarse rhonchi were heard in the lungs. During the day respirations increased in rate. The patient went into coma and died late that evening.

Recapitulation.—A 27 year old white man had twenty-four admissions to Children's Hospital and Barnes Hospital for the treatment of acute exacerbations of a chronic disseminated osteomyelitis. A congenital cyst of the lung was an incidental finding. All admissions were for the purpose of surgical treatment of the infection. On the twenty-first admission, albumin in appreciable amount began to

appear in the urine and this persisted. On the last admission, laboratory findings indicated marked renal damage. In addition, there was a large liver, a palpable spleen, low blood chlorides, somewhat elevated blood calcium and markedly elevated blood phosphorus. Clonic muscular spasms and symptoms of shock with resuscitation were prominent features.

CLINICAL DISCUSSION

DR. HARRY ALEXANDER: This case records a remarkable battle between the invasion of hemolytic staphylococcus and the defenses of the body. The battle lasted fifteen years before the defenses finally crumbled. Before we consider what happened to the tissues, I think it would be well to discuss what this invading organism does. Dr. Harford, will you tell us about the characteristics and pathogenicity of the Staphylococcus aureus hemolyticus?

DR. CARL HARFORD: It appears that the organism entered the body at the site of the injury in 1929. The organism is fairly common on the skin of human beings, and this initial injury may have reduced the resistance of the host enough to allow infection to take place. It seems likely that after the primary focus was established at the point of trauma, the infection then became established in the bone. The pathway of spread was probably through the blood. There were probably small showers of bacteremia occurring at intervals. Subsequent foci were set up, largely in the bones. These organisms do seem to lodge in the cancellous portion of the bone more frequently than elsewhere. Staphylococci of the aureus variety are usually more pathogenic than other types. Hemolysis on blood agar indicates greater pathogenicity, as does the production of plasma coagulase and the fermentation of mannite. In this school several years ago Dr. Julianelle showed that a specific soluble carbohydrate also indicates greater pathogenicity.

Dr. Alexander: What I had in mind particularly was the fifteen year interval during which the patient had so many hospital admissions. Is the defense against this organism largely cellular or humoral? These organisms lodged in various places, were combatted and at the same time they did something to vital organs in the patient. What, if anything, is peculiar to staphylococcal infections which leads to chronicity such as this?

DR. HARFORD: When infection of the bone takes place, there is necrosis with the production of sequestra. I believe that in these foci of bone the phagocytic mechanism is not present, and that is why the organism persists. Then when some other factors lower the resistance of the host, the organisms spread and produce acute exacerbations.

Dr. Alexander: The Staphylococcus aureus hemolyticus has a true exotoxin, has it not?

DR. HARFORD: Yes. One very well known exotoxin is the one which produces symptoms of so-called food poisoning. There is a hemolysin known; there is a leukocydin known. It is also known that necrosis of the skin is produced. There is furthermore the Duran-Reynals spreading factor, which produces spread of particles in the skin.

DR. ALEXANDER: In this case new abscesses were set up during the course of the disease, but somehow the body protected itself from further spread for a long time. But staphylococci must have entered the circulation to produce the subsequent events. Signs of glomerulonephritis were discovered. Dr. Bulger, do you believe the diagnosis of glomerulonephritis was correct? A year later, in December, 1943, the patient had large amounts of albumin in the urine, a normal non-

protein nitrogen, a fair urea clearance, hyaline casts, normal blood pressure, and no changes in the eyegrounds. He had rather reduced blood proteins, with an inverted ratio.

DR. HAROLD BULGER: In a patient with such a prolonged illness and marked albuminuria, one would suspect amyloid disease. This boy had an enlarged liver and a palpable spleen, which makes such a diagnosis even more likely.

DR. ALEXANDER: What typical characteristics of amyloid disease did this patient exhibit? Is albuminuria usually marked in that condition?

DR. BULGER: It is usually very marked, although there

DR. ALEXANDER: Are hyaline casts part of the picture?

Dr. Bulger: Yes.

DR. ALEXANDER: What else, Dr. Moore?

DR. CARL MOORE: Most important of all, it seems to

me, is the Congo red test.

DR. ALEXANDER: On the last admission no Congo red was excreted-the inference is that Congo red was picked up by the tissues. What are the normal values for Congo red? The patient had had 33 per cent retention a year previously.

DR. MOORE: It is really not a very critical test, but under ordinary circumstances there should be at least 60 per cent retention at the end of an hour. Values from 40 per cent to 60 per cent are equivocal, but less than 40 per cent usually means amyloid disease.

DR. ALEXANDER: What else is in keeping with amyloid disease, as opposed to glomerulonephritis?

DR. BULGER: The enlarged liver and the palpable spleen.

Dr. Barrett Taussig: And the low blood pressure.

DR. BERTRAND GLASSBERG: And the absence of retinal exudate.

DR. ALEXANDER: A year later he had a nonprotein nitrogen of 105 mg, per cent and signs of nitrogen retention. Would that cancel the idea of amyloid disease?

DR. CYRIL MACBRYDE: No. The end process causes kidney failure.

DR. ALEXANDER: Does everyone agree that this patient had amyloidosis?

DR. EDWARD MASSIE: A factor against amyloid disease is the statement that there were many red cells in the

DR. ALEXANDER: Yes, on one occasion the urine was stated to be loaded with white and red blood cells. One would not expect red cells in the urine in amyloid

DR. WAYLAND MACFARLANE: That was on only one examination. The others showed very few or no cells.

DR. ALEXANDER: Since there were so many urine examinations, that one finding might be considered as accidental and not relevant. But it is an excellent point. If we all agree that the kidneys will show amyloid disease, with amyloid deposits in the glomerular capillaries or the media of the vessels, may we expect to find anything else?

Dr. Massie: The great number of white blood cells makes me think of either a pyelonephritis, or, if we consider the original causal factor, of focal abscesses in the kidneys caused by the staphylococcus.

Dr. Alexander: If that were so would not one expect to have a persistent pyuria? Those cells were found only on one occasion.

Dr. Glassberg: I would like to make a suggestion in regard to the nonprotein nitrogen. The stool examination showed a 4 plus guaiac which would indicate a large amount of blood in the gastrointestinal tract. In the dog, introduction of a large amount of blood into the gastrointestinal tract causes a considerable increase in the nonprotein nitrogen in the blood. It is possible that the high nitrogen retention is not an indication of kidney disease per se.

Dr. Massie: The reverse would be true: that one

cause of bleeding in the gastrointestinal tract is uremia.

DR. GLASSBERG: That is right. But I am speaking of experiments on dogs, with normal kidneys.

Dr. Alexander: This patient had a congenital cyst of the lung. He may also have had a congenital cyst of the kidney. Dr. Goldman, what is the incidence of cysts of the kidney associated with cysts of the lung?

DR. ALFRED GOLDMAN: It is probably small, but it has been described.

Dr. ALEXANDER: Dr. Massie, does the shape of the heart in the roentgen ray film suggest something definite to you?

Dr. Massie: As has been pointed out, the two films are hardly comparable because one was taken with a portable machine. We should assume that there is some cardiac enlargement. Realizing that there is no hypertension or increased peripheral vascular resistance, we have to find some other explanation for cardiac enlargement. We may explain it on the basis of the general picture. Amyloidosis of the myocardium has been described. It is true that amyloid tissue appears first in the spleen, next in the kidneys and less often in the heart. The other possibility is a pericarditis. Uremic pericarditis may account for the roentgen ray picture.

DR. ALEXANDER: The day after this patient came to the hospital he gave a remarkable exhibition of shock. His blood pressure was very low and his chlorides were low. He was given sodium chloride and adrenal cortical extract. Dr. MacBryde, do you believe that this episode could be accounted for merely by low circulating chlorides?

Dr. MacBryde: I hardly think so. I have never seen a patient put on low chloride intake whose chlorides went so low as to give him a picture like Addison's disease.

Dr. ALEXANDER: How long had he been vomiting before he came in?

DR. MACFARLANE: He had vomited irregularly for most of the interval between the last two admissions. Dr. Alexander: He lost chlorides from vomiting.

Would that explain the picture, Dr. MacBryde?

Dr. MacBryde: Yes, I think so.

Dr. ALEXANDER: Shortly after, it was noted that he had some remarkable values of blood calcium and blood phosphorus. When the chlorides were 4.83, the calcium was 11.3 and phosphorus 17.2 mg. per cent. Can you unravel that?

DR. MACBRYDE: The phosphorus retention could result from the severe kidney damage. Usually with phosphorus retention of that degree the blood calcium tends to be a little low; the high calcium value in this case is surprising.

Dr. Alexander: It fell to 7.2 when the phosphorus went to 19. There was, therefore, an associated calcium depression and with it signs of tetany. The chlorides

at that time were fairly normal.

Dr. Bulger: That first examination raises an interesting question. It is true that as a rule this is the picture we find-high phosphate and low calcium. But it is by no means always true. A normal calcium occasionally accompanies a high phosphate in nephritis. The parathyroids were examined in a large series of cases of nephritis and hypertrophy of the parathyroids was a fairly common finding. Occasionally a good sized adenoma of the parathyroid was observed. These findings make one wonder, when a normal calcium accompanies a high phosphate, whether or not it is a case with compensatory hypertrophy of the parathyroids.

DR. GLASSBERG: May I say something in connection with the kidney lesion? The patient was given sulfonamides. They might have produced or aggravated the kidney damage and played a part in the terminal picture.

DR. ALEXANDER: He did not get a great deal of the

drug. Dr. Harford, what is the procedure if a person needs sulfonamide drugs but has an obviously damaged kidney?

DR. HARFORD: It would depend upon which sulfonamide drug was to be used and that would depend upon the organism involved. Sulfanilamide would not be expected to be effective against the staphylococcus, but if another drug was used, it might be done with safety if care was taken to follow the blood level. Whenever there is nitrogen retention there is apt to be retention of the drug also.

Dr. Bulger: The renal clearance of sulfonamides approaches the clearance of urea. Therefore with kidney insufficiency, the drug may still be given, but much smaller doses will produce the same blood level.

Dr. John Smith: The shape of the cardiac shadow in the second roentgenogram suggests chronic adhesive pericarditis. The only thing clinically to support it is the low blood pressure.

DR. KEITH WILSON: Could amyloidosis of the adrenals have been associated with shock?

DR. MacBryde: I think the fact that he recovered from the shock and did not require any more adrenal cortex therapy would be evidence against the shock being caused by adrenal insufficiency. Amyloid disease as a cause of Addison's disease is rare.

Dr. ALEXANDER: Is it agreed then that this man had amyloidosis, involving probably the kidney, spleen and liver? Is it agreed that he also had pericarditis and signs of uremia? Are there any further suggestions or objections?

Dr. Bulger: He had sepsis.

Dr. Alexander: Yes, the abscesses of a staphylococcal infection. The suggestion was made that possibly his parathyroids will be found to be enlarged. He may have had cystic disease of the kidney.

Dr. Massie: We should always mention bacterial endocarditis.

Dr. Carl Moore: I do not think the discussion should close without some criticism of our medical management of this patient. In our enthusiasm to correct this man's low chlorides, we gave him too much. I think we are responsible for precipitating his tremendous edema or anasarca, which might have been avoided if we had been more temperate in the administration of chloride.

CLINICAL DIAGNOSIS

Amyloidosis of kidney, liver and spleen, ? of adrenal, due to chronic infection.

Uremia, uremic pericarditis, uremic ulcers of colon?. Abscess of thigh, left.

Absence of left leg due to amputation.

Cyst of lung, congenital, left upper lobe.

DR. ALEXANDER'S DIAGNOSIS

Amyloidosis of the kidneys, spleen and liver. Pericarditis. Uremia.

Staphylococcal abscesses.

ANATOMIC DIAGNOSIS

Partially healed suppurating wound of left hip and absence of left lower extremity.

Healed wounds of neck, left forearm, right flank, right thigh.

Amyloid infiltration of adrenal glands.

Amyloid infiltration of kidneys, advanced, with fibrosis (clinical history of uremia, ten days).

Blood in renal tubules.

Fatty degeneration of epithelium of renal tubules.

Organizing fibrinous pericarditis.

Bronchopneumonia of the lower lobes of the lungs. Chronic pyelonephritis.

PATHOLOGIC DISCUSSION

Dr. Robert A. Moore: I should like to comment on some of the points that were brought up in the clinical There was a minimal grade of pyelonephritis and polymorphonuclear leukocytes in a few tubules, but there were no other signs of infectionno abscesses and no healed abscesses. The question arose as to the distribution of amyloid. I believe it is significant in this patient that the amyloid was deposited in the kidneys and in the spleen, but not in the liver. Certainly in most examples of amyloidosis those three organs are affected. I would like to suggest that the removal of the leg of this patient brought about resorption of the amyloid in the liver, but that in the kidney it had progressed too far for resorption. This phenomenon has been observed. In the German literature there is one clear case in which removal of the leg brought about resorption of amyloid. The observer examined a biopsy specimen before and two years after the removal of the leg.

A cyst of the lung as large as the roentgen ray shadow suggested could not possibly have been missed at autopsy. There was a fine fibrosis extending throughout the lung, and this may have given the outline that appeared on the roentgen ray plate.

DR. EDWARD REINHARD: Could the outline have been

made by a pneumothorax?

DR. ALEXANDER: Yes, that is possible.

DR. ROBERT MOORE: Pericarditis was present, beginning to organize. It was not an organized, adhesive pericarditis but it had been there for some time and there were some adhesions uniting the two pericardial surfaces. There was no hypertrophy of the heart. I was glad to hear Dr. MacBryde say that he did not think amyloidosis of the adrenals was significant in this patient. The symptoms of adrenal insufficiency must be accounted for on some other basis. We did not have an opportunity to examine the parathyroids to see if there were hyperplasia. They are not enlarged in all patients with chronic renal disease, and when they are enlarged the hyperplasia is usually of the chief cells rather than of the clear cells. Hyperplasia of the clear cells represents a primary hyperparathyroidism, and hyperplasia of the chief cells represents secondary hyperparathyroidism, as the result probably of acidosis with chronic renal disease, according to Dr. Tracy

DR. ALEXANDER: Do you consider that there is any significance to the calcium in the kidneys?

Dr. Robert Moore: I do not know why that calcium was deposited. It might be related to the sulfonamide therapy, or to hyperplasia from the secondary deposits in the kidney, which is frequently seen.

Reporting a study in an army camp in which was determined the incidence of scarlet fever due to various strains of hemolytic streptococci, Morton Hamburger, Jr., M.D., Field Director of the Army Medical Department's Commission on Air-Borne Infections, and Carolyn H. Hilles, M.S.; Virginia Hamburger, B.S.; Margaret A. Johnson, M.S., and Joanna G. Wallin, B.S., Camp Carson, Colorado, point out in The Journal of the American Medical Association for February 26, "The establishment of the relative ability of various strains of hemolytic streptococci to produce scarlet fever is of considerable epidemiologic importance. Scarlet fever is a reportable disease in practically all communities whereas other forms of streptococcic disease are not. If the ratio of cases of scarlet fever to the total cases of streptococcic pharyngitis-tonsillitis can be established for the various serologic types, a yardstick will be available for the estimation of the total amount of streptococcic disease in a community during a given season.

THE JOURNAL

of the

Missouri State Medical Association

623 Missouri Bldg. Telephone: Newstead 0404-05

Subscription - - - \$3.00 a year in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent.

APRIL, 1944

EDITORIALS

ANNUAL SESSION

Have you circled the dates? The 87th Annual Session of the Missouri State Medical Association will be held in Kansas City, April 23, 24 and 25. The Jackson County Medical Society, host to the Session, has made excellent preparations for the Session and the Committee on Scientific Work has arranged an instructive program. A schedule of time and places of meetings and the program for the Session appear on pages 85, 86, 87 of this issue of The Journal. Mark your calendar now.

DEATH RATES IN 1943

For the first time in six years an increase in the death rate is reported by the Metropolitan Life Insurance Company among its policyholders, reflecting essentially the conditions in the general population of the United States. The rate for last year was 782.0 per 100,000, an increase of 6.7 per cent over the record health year of 1942. The rate is still less than that for any year prior to 1938. The death rate for the country as a whole in 1943 is estimated at 10.9 per 1,000. This rate in 1942 was 10.4.

The rise in deaths attributable to the war is a large factor in the increase in mortality. The greatest rise occurred at ages 20 to 24 among white males, the rate being 84 per cent higher than in 1942 and 144 per cent higher than in 1941. The rise was not as great in the ages 15 to 19 and 25 to 34, but still sufficient to increase the total figure.

The average length of life of policyholders, estimated on mortality figures, is three tenths of a year less than in 1942, or 63.8. However, this is a gain of fourteen years since the time of the first World War.

The death rate from influenza and pneumonia for 1943 was 41.3 per 100,000, an increase of 25 per cent over the minimal rate in 1942. The figure for 1943, however, is approximately one half the annual average of about 82 per 100,000 which prevailed in the five year period prior to the development of serum treatment and chemotherapy. During the influenza epidemic of the first World War, the rate reached 3,394.7 per 100,000 in the peak month and averaged 542.2 per 100,000 for 1918 as a whole.

Among diseases which caused increased mortality in 1943 were cerebral hemorrhage with an increase of 8.6 per cent, chronic heart disease increased 7.6 per cent, diseases of the coronary arteries and angina pectoris 4.3 per cent and chronic nephritis 2.2 per cent. Diseases

which showed slight increases were cancer, diabetes, measles, whooping cough, diphtheria, diarrhea, enteritis and cerebrospinal meningitis.

Suicides were lower than at any time since the period immediately following World War I and homicides were at a low level. Fatal accidents increased because of the war. There was a slight rise in accidents in the home but occupational accidents declined approximately 10 per cent. Motor vehicle fatalities decreased more than 20 per cent from 1942 and 37 per cent from 1941.

NEWS NOTES

Dr. and Mrs. J. D. Smith, Shelbina, celebrated their seventy-first wedding anniversary on February 20.

Dr. C. E. Salyer, formerly of Hannibal, has been appointed assistant physician at State Hospital No. 2, St. Joseph.

Dr. William V. McKnelly, Jefferson City, has been elected vice president of the hospital staff of St. Mary's Hospital, Jefferson City.

The Cole County Medical Society gave a dinner in Jefferson City early in February in honor of Dr. Joseph S. Summers, Jr., who entered military service.

Lt. William W. Gist, Kansas City, has been cited by Admiral William F. Halsey "for skillful and effective performance of duty under adverse circumstances while servicing with a marine aircraft group in the Solomons."

The second War Conference of industrial physicians, industrial hygienists and industrial nurses will be held in St. Louis, May 8 to 14, at the Jefferson Hotel. Participating organizations are the American Association of Industrial Physicians and Surgeons, American Industrial Hygiene Association, National Conference of Governmental Industrial Hygienists and the American Association of Industrial Nurses.

The Committee on Study of Cardiac Diseases will have a dinner meeing, Sunday, April 23, at 7:00 p. m., in the Ballroom, Hotel Muehlebach, to which all members of the Association are invited. Col. John T. King, formerly of Johns Hopkins University, will speak on "Neurocirculatory Asthenia," and Dr. Chauncey Maher, Chicago, will be on the program. The dinner reservations will be \$2.25 and tickets may be obtained from the Missouri State Medical Association; Dr. J. DeVoine Guyot, Jefferson City; Dr. Julius Jensen, 3720 Washington, St. Louis; Dr. E. E. Glenn, Springfield; Dr. C. Braxton Davis, Nevada; Dr. H. W. Carle, St. Joseph; Dr. Harry M. Gilkey, Professional Building, Kansas City; Dr. A. Graham Asher, Professional Building, Kansas City.

RANDOM OBSERVATIONS BY A ROVING REPORTER

Too frequently the presentation of a paper at a medical meeting in the late afternoon takes on the appearance of Mozart's "Abschieds Sinfonie." At the end the essayist is speaking to the chairman as the concert meister runs off the last note on his violin under the baton of the conductor.

Will wonders never cease! Greene has transplanted all sorts of things into the anterior chamber of the eye. The mouse embryo removed from the uterus and placed in the eye is apparently somewhat shocked by its new surrounding. For several hours all is quiet, but in about six hours composure is recovered and rhythmic movements—setting-up exercises—begin. In an attempt to explore the real basis of "modern civilized man" careful

explore the real basis of "modern civilized man" careful check was made of the behavior of the rabbits with human brain tissue in the eye. With regret, the author reports no unusual actions.

The new name for the street cleaner is a curb chiropractor—from the radio program celebrating the President's birthday.

How many physicians who had to look in the dictionary for the recently revived word "roorback," would have to consult Mr. Webster for the meaning of the word "to burke." You are excused for the first. It means—a defamatory falsehood published for political effect—so named for the Travels of Baron Roorback," entirely fictional, used against James K. Polk in 1844. No excuses for the second, it is a part of medical lore. In the early days of anatomy in Scotland too many elderly penniless people dropped out of sight only to reappear in the dissecting room. Good detective work turned up a Mr. Burke. The present definition is "(1) to murder by suffocation, or so as to produce few marks of violence, for the purpose of obtaining a body to be sold for dissection; (2) to dispose of quietly or indirectly; to suppress; to smother, to shelve, as, to burke a parliamentary question." You can guess the connection of Burke and the disappearance of the Scotch. Date—1829.

Even during the trying circumstances of wartime, health can be good. At the end of four years of war, the British people are enjoying good health. The death rate is at prewar levels, the birth rate is the highest since 1928, the infant and child mortality is at the lowest level in history, and the threatened increase of tuberculosis among women and children is no longer apparent. In contrast, the death rate exceeds the birth rate in France, deaths from tuberculosis among Parisians have doubled between 1940 and 1942, and the caloric intake of children in refugee camps is only 900 calories a day. (See "Our Health in Wartime" by Louis I. Dublin in Feb-Harper's Magazine.) Prophetically, Dublin states: "It is clear therefore that in the postwar period all nations must stand together for the preservation of global health. We in America have a permanent stake in it. We cannot isolate our own well-being. Epidemics have a way of crossing boundaries and disregarding na-tional borders." Medical men must face squarely the same problem which bothers the politicians-isolationism.

The deluge of articles on the assassination of Lincoln has again raised the question of the inaccuracies of human observation. All histories state that John Wilkes Booth fractured his left leg as he jumped from the box to the stage after shooting Mr. Lincoln. The dying man taken from the tobacco barn on the Garrett farm had a fractured right leg. As if this were not enough confusion, of two physicians present at the autopsy on Lincoln, one certified that the ball was lodged behind the right orbit and the other that it was just posterior to the left orbit.

A report from Netherlands Information Service expresses some concern about the rising death rate in Holland under Nazi domination. The rate was 9.4 in 1942 as compared with 8.6 in 1939. The figure for the United States in 1942 was 10.4. We with all our money and industry did more poorly than the Dutch ground under the German heel. No wonder there is agitation for some change in medical practices.

Some people have not learned that the hallmark of "royalty" is graciousness and consideration for others. Jane, daughter of a high ranking medical officer, gained publicity under a United Press dispatch headlined "Rank Wins Out in Scramble for Army Chapel Nuptials." It seems that two girls had to change their arrangements because the chapel was unavailable during the many hours required for the decorations incident to the marriage of a Major General's daughter.

A survey has shown that the average loss of time for illness was 10.2 days for a 12 month period in one large government department. The answer to this by the U. S. Civil Service Commission is to request the establishment of employee health programs by legislation. Some think the answer might well be found in the six day eight hour day. After all, a girl has to have some time to go to the beauty shop.

DEATHS

Shoemaker, William Alfred, M.D., St. Louis, a graduate of the University of Maryland School of Medicine, 1885; Honor member of St. Louis Medical Society; Affiliate Fellow of the American Medical Association; aged 85; died November 7, 1943.

Schudde, Otto Nicholas, M.D., Ferguson, a graduate of Barnes Medical College, 1898; Honor member of the St. Louis County Medical Society; aged 76; died No-

vember 29, 1943.

Keller, Julc Harrison, M.D., Lancaster, a graduate of Central Medical College, St. Joseph, 1900; former president and vice president of the Schuyler County Medical Society; aged 68; died November 30, 1943.

Hempelmann, Theodore Carl, M.D., St. Louis, a graduate of Washington University School of Medicine, 1908; Honor member of the St. Louis Medical Society; Fellow of the American Medical Association; aged 59; died December 13, 1943.

Salc, Onal A., M.D., Neosho, a graduate of National University of Arts and Sciences, 1917; member of the Newton County Medical Society; Fellow of the American Medical Association; aged 53; died January 27

can Medical Association; aged 53; died January 27.

Trigg, Joseph Milton, M.D., St. Louis, a graduate of the College of Physicians and Surgeons, Keokuk, 1893; member of the St. Louis Medical Society; Fellow of the American Medical Association; aged 74; died January 30.

Ritter, Calcb A., M.D., Kansas City, a graduate of the Indiana Medical College, 1877; Honor member of the Jackson County Medical Society; Affiliate Fellow of the American Medical Association; aged 93; died January 31, 1944.

Rumsey, Fredk. Crosby, M.D., Kansas City, a graduate of the University of Kansas School of Medicine, 1909; member of the Jackson County Medical Society; Fellow of the American Medical Association; aged 64; died February 1.

Stockwell, Benj. Early, M.D., St. Louis, a graduate of Barnes Medical College, 1904; Honor member of the St. Louis Medical Society; Affiliate Fellow of the American Medical Association; aged 81; died February 2.

Dean, Lee Wallace, M.D., St. Louis, a graduate of State University of Iowa College of Medicine, 1896; member of the St. Louis Medical Society; Fellow of the American Medical Association; Professor Emeritus of Otolaryngology, Washington University School of Medicine; aged 71; died February 9.

Johnston, Elza Lee, M.D., Concordia, a graduate of the University Medical College of Kansas City, 1911; member and former president and secretary-treasurer of the Lafayette County Medical Society; aged 60; died February 23.

MISSOURI STATE MEDICAL ASSOCIATION

87th Annual Session, Municipal Auditorium, Kansas City

The 87th Annual Session of the Association will convene at the Municipal Auditorium, Kansas City, Sunday, Monday and Tuesday, April 23, 24 and 25,

TIME AND PLACE OF MEETINGS

Sunday, April 23

- Council. Room 1, Mezzanine Floor, Hotel Muehlebach. 10:00 a.m.
- Unveiling of Service Roster of Jackson County Medical Society. General Hospital Malls. 12:30 p. m.
- House of Delegates. Little Theater, Municipal Auditorium. 2:00 p. m.
- 6:00 p. m. Dinner for Secretaries and Presidents of County Medical So-
- cieties. Trianon Room, Hotel Muehlebach.
 Dinner of Committee on Cardiac Diseases. Ballroom, Hotel 7:00 p. m. Muehlebach.

Monday, April 24

- 8.00 a m Council. Breakfast. Room 2, Mezzanine Floor, Hotel Muehle-
- Scientific Session. Little Theater, Municipal Auditorium. 9:00 a. m.
- Annual Meeting of Committee on Maternal Welfare and Com-12:00 noon. mittee on Infant Care. Trianon Room, Hotel Muehlebach.
- Scientific Session. Little Theater, Municipal Auditorium. Banquet in Honor of Past Presidents. Ballroom, Hotel Muehle-2:00 p. m.
- 7:00 p.m. bach.

Tuesday, April 25

- 8:30 a.m. Election of Councilors by Delegates from Districts 1, 3, 5, 7 and 9.
- 9:00 a.m. Scientific Session. Little Theater, Rooms 203, 204, 205, Municipal Auditorium.
- 12:00 noon. Medical Alumni of University of Missouri Luncheon. Music Room, Hotel Muehlebach.
- 2:00 p. m. House of Delegates. Little Theater, Municipal Auditorium.
- 4:30 p. m. Council. Little Theater, Municipal Auditorium.

GENERAL MEETING

Monday, April 24, 1944, 9:00 a.m.—Little Theater, Municipal Auditorium

Heart and Hypertension....Col. John T. King, M.C., Washington, D. C. Etiology of Hypertension......Peter Heinbecker, M.D., St. Louis The Heart in Hypertension............Drew Luten, M.D., St. Louis Management of the Hypertensive Patient

-Edward Massie, M.D., St. Louis

Psycogenic Factors in Hypertension

—A. Morris Ginsberg, M.D., Kansas City

11:10 to 12:00 noon.

2:00 to 2:50 p. m.

Abdominal Incisions...... Henry K. Ransom, M.D., Ann Arbor, Michigan

MATERNAL WELFARE AND INFANT CARE LUNCHEON

Annual Meeting

Monday, April 24, 1944, 12:00 noon—Trianon Room, Hotel Muehlebach E. Lee Dorsett, M.D., St. Louis, Chairman, Committee on Maternal Welfare, Presiding

Park J. White, M.D., St. Louis, Chairman, Committee on Infant Care

Program

Emergency Maternal and Infant Care Program

- W. W. Bauer, M.D., Director, Bureau of Health Education, American Med-
- ical Association, Chicago L. Gentry, M.D., Director, Division of Child Hygiene, State Board of Health, Jefferson City Open Discussion.

GENERAL MEETING

Monday, April 24, 1944, 2:00 p. m.—Little Theater, Municipal Auditorium

Cardiac Disorders in an Army General Hospital -Col. John T. King, M.C., Washington, D. C. 3:00 to 5:00 p. m.

Preoperative and Postoperative Care and Complications

—Henry K. Ransom, M.D., Ann Arbor, Michigan Nutritional Problems......Roland S. Kieffer, M.D., St. Louis Special Problems of Poor Surgical Risks, Especially Age

-William B. Kountz, M.D., St. Louis

Selection of the Anesthetic.......Charles F. Sherwin, M.D., St. Louis Postoperative Complications

—Henry K. Ransom, M.D., Ann Arbor, Michigan

Sulfonamide Drugs as an Adjunct to Surgery
—E. L. Keyes, M.D., St. Louis

BANQUET IN HONOR OF PAST PRESIDENTS

Monday, April 24, 1944, 7:00 p. m.—Ballroom, Hotel Muehlebach

A. W. McAlester, Jr., M.D., Kansas City, President, Presiding Tendered by Officers of the Association, Presidents and Secretaries of County Medical Societies, Members of the House of Delegates, Members of the Association and Their Guests, Members of the Woman's Auxiliary to Past Presidents of the Association.

Address of Welcome—Harry L. Jones, M.D., Kansas City, President, Jackson County Medical Society

Address of the President—A. W. McAlester, Jr., M.D., Kansas City

Introduction of Past Presidents of the Missouri State Medical Association The Position of Medical Education in Federalized Medicine—Rev. Father Alphonse M. Schwitalla, S.J., Dean, St. Louis University School of Medicine, St. Louis

GENERAL MEETING

Tuesday, April 25, 1944, 9:00 a. m.—Municipal Auditorium

9:00 to 11:00 a.m. Panel Discussions Traumatic Surgery-Room 203, Municipal Auditorium Back Injuries......Frank D. Dickson, M.D., Kansas City Soft Tissue Wounds.....Eugene O. Parsons, M.D., Kansas City Burns......Vincent T. Williams, M.D., Kansas City Medical Aspects......Delon A. Williams M.D., Kansas City Roentgen Ray Findings......I. H. Lockwood, M.D., Kansas City Abnormal Obstetrics—Room 205, Municipal Auditorium Wm. H. Vogt, M.D., St. Louis, Moderator Buford G. Hamilton, M.D., Kansas City Grey Jones, M.D., St. Louis Joseph J. Webster, M.D., Kansas City Diabetes—Little Theater, Municipal Auditorium Wm. H. Olmsted, M.D., St. Louis, Moderator Experimental Diabetes......Donald R. Black, M.D., Kansas City Guiding Principles in Use of Diet.....B. Y. Glassberg, M.D., St. Louis Use of Slow Acting Insulin......Fred Irwig, M.D., Kansas City Diabetic Gangrene.....B. L. Myers, M.D., Kansas City 11:10 to 12:00 noon.

Treatment of Leukemia With Radioactive Phosphorus
—Edward H. Reinhard, M.D., St. Louis

COMMERCIAL EXHIBITS

CIBA PHARMACEUTICAL PRODUCTS, INC., Summit, New Jersey. Booth 1.
ELI LILLY AND COMPANY, Indianapolis, Indiana. Booth 2.
CAMEL CIGARETTES, One Pershing Square, New York. Booths 3 and 4.
W. B. SAUNDERS COMPANY, West Washington Square, Philadelphia. Booth 5.
J. R. SIEBRANDT MANUFACTURING COMPANY, 3239 Troost Ave., Kansas City.
Booth 6.
DUMAS-WILSON & Co., 5579 Pershing Ave., St. Louis. Booth 7.
CAMERON HEARTOMETER COMPANY, 666 W. Division St., Chicago. Booth 8.

CAMERON HEARTOMETER COMPANY, 666 W. Division St., Chicago. Booth 8. Schering Corporation, 86 Orange St., Bloomfield, N. J. Booth 9. "The 'Junket' Folks," Chr. Hansen's Laboratory, Inc., Little Falls, N. Y. Booth 10.

Gradwohl Laboratories, 3514 Lucas Ave., St. Louis. Booths 11 and 12. S. M. A. Corporation, 8100 McCormick Blvd., Chicago. Booth 13. M & R DIETETIC LABORATORIES, INC., Columbus, Ohio. Booth 14. Nutrition Research Laboratories, 4210 Peterson Ave., Chicago. Booth 15. Holland-Rantos Company, Inc., 551 Fifth Ave., New York. Booth 16. Sharp & Dohme, Inc., Philadelphia. Booth 17. Pet Milk Sales Corporation, Arcade Building, St. Louis. Booth 18.

Frederick Stearns & Company, Detroit. Booths 19 and 20.

Petrogalar Laboratories, 8134 McCormick Blvd., Chicago. Booth 21. John Wyeth & Brother, Inc., 1600 Arch St., Philadelphia. Booth 22. THE C. V. Mosby Company, 3525 Pine Blvd., St. Louis. Booth 23. WILLIAM R. WARNER & Co., Inc., 113 West 18th St., New York. Booths 24 PARKE, DAVIS & COMPANY, Detroit. Booth 26. THE BORDEN COMPANY, 350 Madison Ave., New York. Booth 27. SMITH, KLINE & FRENCH LABORATORIES, Fifth and Arch Sts., Philadelphia. Booth 28. E. R. SQUIBB & Sons, 745 Fifth Ave., New York. Booth 29. BILHUBER-KNOLL CORP., Orange, New Jersey. Booth 30. BURROUGHS WELLCOME & Co. (U. S. A.) INC., 9-11 East Forty-First St., New York. Booth 31. CARNATION COMPANY, Oconomowoc, Wis. Booth 32.
THE MEDICAL PROTECTIVE COMPANY, Fort Wayne, Indiana. Booth 33. THE W. E. ISLE COMPANY, 1121 Grand Ave., Kansas City. Booth 34. LEDERLE LABORATORIES, INC., 30 Rockefeller Plaza, New York. Booth 35. C. B. FLEET Co., 921 Commerce St., Lynchburg, Va. Booth 36.
PHILIP MORRIS & Co. LTD., INC., 119 Fifth Ave., New York. Booth 37. WINTHROP CHEMICAL COMPANY, INC., 170 Varick St., New York. Booth 38. Lea & Febicer, 600 Washington Square, Philadelphia. Booth 39. The Coca Cola Company, Atlanta, Ga. Booths 40 and 41. MEAD JOHNSON & COMPANY, Evansville. Booth 42. WHITE LABORATORIES, INC., 113 North 13th St., Newark, N. J. Booth 43. ABBOTT LABORATORIES, North Chicago, Illinois. Booth 44. GOETZE NIEMER COMPANY, St. Joseph, Mo. Booth 45. THE MALTINE COMPANY, 745 Fifth Ave., New York. Booth 47. A. S. ALOE COMPANY, 204 Bryant Bldg., Kansas City. Booth 48. THE NATIONAL DRUG COMPANY, Philadelphia. Booth 49.

J. B. LIPPINCOTT COMPANY, East Washington Square, Philadelphia. Booth 50. THE PELTON & CRANE COMPANY, 632 Harper Ave., Detroit. Booth 51. Spencer, Inc., New Haven, Conn. Booth 52.
GREB X-RAY COMPANY, 1412 Grand Ave., Kansas City. Booth 53. CONFORMAL FOOTWEAR Co., Division International Shoe Company, St. Louis. Booth 54.

WOMAN'S AUXILIARY

Woman's Auxiliary to the American Medical Association

President, Mrs. Eben J. Carey, Wauwatosa, Wisconsin. President-Elect, Mrs. David W. Thomas, Lock Haven, Pennsylvania.

Woman's Auxiliary to the Missouri State Medical Association

President, Mrs. R. C. Haynes, Marshall. President-Elect, Mrs. J. B. McCubbin, Fulton. Adviser, Dr. Herbert L. Mantz, Kansas City.

TENTATIVE PROGRAM

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

Kansas City, April 23-24, 1944 Hotel President

Sunday, April 23, 1944

1:00 p.m. Registration at Hotel President.
2:00 p.m. Meeting of Executive Board, Room 225.
6:00 p.m. Buffet supper and entertainment at the home of Mrs. Earl Padgett, 1425 Brookwood Road.
Visiting members guests of Jackson County Auxiliary.
Monday, April 24, 1944

8:00 a.m. Breakfast for Past Presidents of Woman's Auxiliary to the Missouri State Medical Association, Room 227. \$1.25.

8:30 a.m. Registration.

9:20 a.m. General Meeting, Junior Ball Room, Hotel President.
Presiding—Mrs. R. C. Haynes.
Invocation

-Dr. Robert I. Wilson, First Baptist Church, Kansas City

Address of Welcome

-Mrs. Earl Padgett, President, Jackson County Auxiliary and Convention Chairman

Response-Mrs. C. M. Grace, Chillicothe.

Tribute to Deceased Members-Mrs. F. L. Finley, Overland.

Minutes

Announcements.

10:00 a.m. Address

-Dr. W. W. Bauer, Director, Bureau of Health Education. American Medical Association

Roll Call

-Mrs. E. E. Wadlow, Recording Secretary, St. Joseph.

Reports.

Officers.

Standing Committees.

Directors.

Credentials.

Old Business.

New Business.

Resolutions.

Nominations.

Election of Officers.

Installation-Mrs. W. M. Bickford, Marshall.

Adjournment.

1:00 p.m. Annual Luncheon, Aztec Room, Hotel President. \$1.25.

Presiding-Mrs. R. C. Haynes.

Invocation-Mrs. M. P. Overholser, Harrisonville.

Introduction of Guests.

Reports of County Presidents.

Address

-Mrs. Eben J. Carey, President, Woman's Auxiliary to the American Medical Association. Courtesy—Mrs. D. P. Dyer, Sedalia.

Presentation of Gavel to Incoming President.

Post Convention Board Meeting, Aztec Room.

Presiding-Mrs. J. B. McCubbin, Fulton.

7:00 p.m. Annual Dinner of Missouri State Medical Association, Muehlebach Hotel.

Guest Speaker

-Father Alphonse Schwitalla, S.J., Dean, St. Louis University School of Medicine.

Auxiliary Members and Guests Welcome.

FINANCIAL STATEMENT FOR 1943

R. A. LENNERTSON & COMPANY St. Louis

ROBERT A. LENNERTSON CERTIFIED PUBLIC ACCOUNTANT

MEMBER AMERICAN INSTITUTE OF ACCOUNTANTS

March 20, 1944.

Missouri State Medical Association, 634 North Grand Blvd., St. Louis, Missouri.

Pursuant to audit engagement, we have examined the accounts of the Missouri State Medical Association for the year 1943 and we have prepared therefrom the following attached statements:

Balance Sheet.

Exhibit A. Exhibit B. Exhibit C. Statement of Income and Expenses. Statement of Committee and Meeting Expenses.

Dues Receivable and Membership by Counties.

SCOPE OF EXAMINATION

We have made an examination of the Balance Sheet as at December 31, 1943, and the Statement of Income and Expenses for the year ended with that date. In connection therewith, we have examined or tested the accounting records of the Association, but we have not made a detailed audit of the transactions.

Cash in banks at December 31, 1943, was reconciled with

Cash in banks at December 31, 1943, was reconciled with the regular monthly bank statements and confirmations received direct from the depositaries. The petty cash fund in the sum of of \$25.00 and the United States Savings Bond with a par value of \$5,000.00 were verified by actual inspection. Appropriate test verifications were made of the income and expense accounts for the year under review. In connection with our check of advertising income from The Journal, it

was noted that complimentary advertisements are occasionally inserted in order to complete pages for publication purposes.

BALANCE SHEET

The attached Exhibit A presents the asset and liability accounts at December 31, 1943, and shows that the Association is in good financial condition. Cash and a United States Savings Bond total \$24,576.86 as compared with liabilities of \$2,853.01 represented by accounts payable and advance payments.

Accounts receivable due from advertisers in the sum of \$623.02 were reviewed by reference to the individual ledger accounts and all of the balances were paid prior to the completion of our audit.

Members' unpaid dues are summarized by counties in the attached Pythibit D and are closed at the county of the co

Members' unpaid dues are summarized by counties in the attached Exhibit D and are classified as to age in the following comparative summary:

December 31, 1943

Year 1943 Year 1942 Year 1941 Year 1940	and prior	\$1,308.00 428.00 236.00 640.00
1011 1310		\$2,612.00
	December 31, 1942	
Year 1942 Year 1941 Year 1940 Year 1939	and prior.	\$2,920.00 672.00 340.00 747.00

The entire sum of 2.612.00 is past due at December 31, 1943, and is offset on the Balance Sheet by a reserve account in a like amount.

\$4,679.00

STATEMENT OF INCOME AND EXPENSES

After providing for all ascertained expenses, the Association realized a net income of \$4,726.58, the details of which are presented in Exhibit B. A comparative summary of income and expenses for the last three years follows:

Particulars		Year 1942	Year 1941
Income		\$36,589.24	\$37,119.43
Expenses		33,012.63	34,414.37
Net Income	\$ 4,726.58	\$ 3,577.01	\$ 2,705.06

The books of account are maintained on the accrual basis for all accounts except members' dues which are taken into income on a cash basis as collected regardless of the period covered by the dues paid.

GENERAL

Fidelity bonds in force cover the Treasurer in the sum of \$20,000.00 and the Executive Secretary in the sum of \$1,000.00. Office equipment and contents are covered by a fire policy in the sum of \$1,000.00 which is the book value of the Furniture and Fixtures.

The records of the Association were well maintained during the year 1943 in conformity with generally accepted accounting principles applied on a basis consistent with that used in the preceding period.

Yours very truly,
R. A. LENNERTSON & Co.

EXHIBIT A.

Missouri State Medical Association

December 31, 1943

BALANCE SHEET

Assets

Cash: Mercantile-Commerce Bank and Trust Company (Treasurer's account) \$19,201.05 Mercantile-Commerce National Bank (Secretary's account) 329.98 Petty Cash Fund 25.00	
U. S. Savings Bond Series G \$ 5,000.00 Accrued Interest 20.83	
Accounts Receivable—Advertisers Dues Receivable—Exhibit D Furniture and Fixtures Prepaid Expense:	623.02 2,612.00 1,000.00
JOURNAL Printing and Postage \$ 627.15 Advance for Traveling Expenses 511.36	
	\$29,950.39
Liabilities	
Accounts Payable: Supplies and Expenses	
Deferred Credit to Income: Advance Payments by Advertisers \$ 34.00 Advance Payments by Exhibitors 1,442.75	
Contingent liability to members on six malpractice suits—\$1,800.00 Reserve for Uncollected Dues	2,612.00
Surplus: Balance January 1, 1943 \$19,758.80	
Add: Excess of Income over Expenses for the year 1943 per Exhibit B 4,726.58	24,485.38
	\$29,950.39
	Ехнівіт В.

Missouri State Medical Association

Statement of Income and Expenses for the Year 1943

Particulars	General Activities	Journal Pub- lication	Together
Dues received (includes \$1.00 per member annually for			•
THE JOURNAL)	\$17,475.00	\$ 2,465.00	\$19,940.00
Rentals—Annual Session Exhibit Space	2,433.00		2,433.00
space)	540.00	••••	540.00
-Nonmembers Advertising space—The Jour-		79.03	79.03
NAL	83.33	14,504.30	14,504.30 83.33
Total Income	\$20,531.33	\$17,048.33	\$37,579.66

EXPENSES:			
Officers' Salaries	\$ 4.351.00	\$ 2,175.00	\$ 6.526.00
Office Salaries	4,248.00	2.124.50	6.372.50
Office Rent and Light	1.689.85	-,121.00	1,689.85
Postage	475.47	351.24	826.71
Stationery, Printing and Of-	1.0.11	001.21	020.11
fice Supplies	700.86		700.86
THE JOURNAL-Paper, Print-			100.00
ing, Mailing, etc		8,120.74	8.120.74
Telephone and Telegraph	880.27	0,120.11	880.27
Insurance	75.73		75.73
Fees, Taxes and General Ex-			10.10
penses	486.89		486.89
Bad Debts	100.00	20.75	20.75
Cash Discounts to Advertisers		324.65	324.65
Commissions on Journal Ad-		021.00	324.00
_ vertising		1,082.66	1.082.66
Traveling Expense—General.	975.79	2,002.00	975.79
Committee and Meeting Ex-	0.0		515.15
penses (Exhibit C)	4.769.68		4,769.68
Equipment Purchases in Lieu	2,702,00		1,100.00
of Depreciation			None
•			
Total Expenses	\$18,653.54	\$14,199.54	\$32,853.08
Not Income for the Deales	0 1 000		
Net Income for the Period	\$ 1,877.79	\$ 2,848.79	\$ 4,726.58

Ехнівіт С.

Missouri State Medical Association Statement of Committee and Meeting Expenses for the Year 1943

Particulars		Amount
Annual Session		\$2,080,45
Council Meetings	\$ 456.70	+
Councilors' Expenses	585.86	
Delegates to A. M. A.	374.40	
Woman's Auxiliary	50.00	1,466.96
Conference and Councilor District Meetings	\$ 102.17	
Constitution and By-Laws	35.00	
Mental Health	2.65	
Postwar Planning	29.32	
Procurement and Assignment	4.70	
Public Policy and Public Relations	1.029.72	
Scientific Work	18.71	1,222.27
Total		£4.700.00
		\$4,769.68

Exhibit D.

Missouri State Medical Association

Dues Receivable and Membership by Counties December 31, 1943

	Numbe	1940	Du	es Re	ceivabl	e	Pre-
Counties Andrew Audrain Barry-Lawrence-	Mem- bers 9 15	and Prior	1941	1942	1943 \$ 8 8	Total \$ 8 8	paid Dues
Stone	35				12	12	
Barton	5						
Benton	5						e 40
Boone	50						\$ 48
Buchanan	102				32	32	
Butler	18				16	16	36
Caldwell- Livingston	16	\$ 24	\$ 8	\$ 8	40	0.0	
Callaway		\$ 44	9 0	\$ 8	48	88	
Camden							24
	36			36	72	108	252
Carroll	9		8	24	32	64	48
Carter-Shannon Cass	5						60
Cass							84
Christian	5				8	8	04
Clay	25				8	8	96
Clinton	11						
Cole				8	8	16	
Dallas-Hickory-	12						
Polk	11						84
Dekalb	2						01
Dent	5						
Dunklin	22				8 8	8	
Gasconade-Marie					8	8	
Osage		80	16	16	16	128	
Greene							
Grundy-Daviess	18	24	8	8	24	64	84
Harrison	6	32	8	8	8	56	

Henry Holt	17						
Jasper	584 67				56	56	
Jefferson Johnson Laclede Lafayette	16 15 13 27			16	8 40 8	8 56 8	
Lewis-Clark- Scotland Lincoln	11 9	56	32	32	40 40	160 40	
Linn	12			8	16	24	
Macon	6 30 7			8	32	40	36
Miller	6				8	8	
Moniteau Montgomery	6						72 48
Morgan New Madrid	3	128	24	24	32	208	
Newton	15						
Nodaway-Atchison- Gentry-Worth	37	16	56	88	128	288	
North Central	30			16	40	56	
Pemiscot	17			16	40	56	24
Perry	5 30						24
Phelps-Crawford	20						96
Pike	12						60
Platte Pulaski	11						60
Randolph-Monroe.	25				20	20	
Ray	9	48	8	16	24	96	
St. Charles St. Francois-Iron-	25						
Madison-							
Washington-						4.0	
Reynolds	38 5				40	40	60
Ste. Genevieve St. Louis	223				24	24	00
St. Louis M. S1	166				232	232	136
Saline	21			8	24	32	156
Scott	16 7	16	8	8	8	40	130
Shelby	31	24	16	24	28	92	180
Stoddard	7				40	40	
Taney	2	88	8	8 16	16 16	120 36	
Vernon-Cedar Wayne	28 4	104	32	32	32	200	
Webster	2						24
Totals3	300	\$640	\$236	\$428	\$1308	\$2612	\$1708
20002000000		,	,	,			

BUDGET

Salaries\$	12,000.00
Printing JOURNAL	9,000.00
Public Policy	1,000.00
Defense	1,000.00
Postage	1,000.00
Postgraduate Course	1,000.00
Printing and Stationery	750.00
Traveling	500.00
Telegraph and telephone	850.00
Rent and light	1,150.00
Meetings	5,000.00
Miscellaneous	700.00

BOOK REVIEWS

Total\$33,950.00

MICROSCOPIC TECHNIQUE IN BIOLOGY AND MEDICINE. By E. V. Cowdry, Professor of Anatomy, Washington University, and Director of Research, The Barnard Free Skin and Cancer Hospital. Baltimore: The Williams & Wilkins Company. 1943. Price \$4.00.

This is an alphabetically arranged book. Each subject so arranged is given a terse but intelligent treatment. For instance, in acid fast bacilli, the author speaks of tubercle and lepra organisms and follows with how they are stained, their behavior in sections and reference to

the work on fluorescent treatment. One may pick at random any subject and find that it has been exceedingly well handled. I predict that this will be found to be a useful book in every laboratory. It teems with "findable," reliable information, some of which is difficult to place one's finger on except in a book of this kind.

Dr. Cowdry could not write anything that was not authoritative or complete. His contributions to science are outstanding. His research investigations have thrown light where darkness prevailed. The laboratory world owes him an accolade for this exceedingly valuable book. I recommend this book most heartily.

Ř. B. H. G.

Manual of Fractures. Treatment by External Skeletal Fixation. By C. M. Shaar, M.D., F.A.C.S. Captain, Medical Corps, United States Navy, and Frank P. Kreuz, Jr., M.D., F.A.C.S. Lieutenant Commander, Medical Corps, United States Navy. Illustrated. Philadelphia: W. B. Saunders Company. 1943.

This book is based on experiences in the Navy. When the patient has to be moved, and especially at sea, the authors feel that external fixation provides a very valuable method of treatment.

"The title of this book is not intended to convey the impression that the first or most important method of treating fractures is external fixation to the exclusion of other methods. The book has been written to meet the current need for the treatment of fractures when other methods are not practicable. In this way the constant endeavor has been to present a handbook for the surgeon and a guide for the beginner interested in the field of external fixation."

The book is well illustrated and gives detailed information and instructions for the use of the Stader splints in the reduction and treatment of fractures.

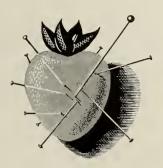
There are 300 pages, yet it is compact and easily carried about, and should be of value where this form of treatment is desirable.

A. O.

METHODS OF TREATMENT. By Logan Clendening, M.D. Clinical Professor of Medicine, Medical Department of the University of Kansas; Attending Physician, University of Kansas Hospitals; and Edward H. Hashinger, A.B., M.D., Clinical Professor of Medicine, Medical Department of the University of Kansas; Attending Physician, University of Kansas Hospitals; Attending Physician, St. Luke's Hospital, Kansas City, Mo. With chapters on special subjects by J. B. Cowherd, M.D.; Leland F. Glaser, M.D.; Thomas B. Hall, M.D.; John S. Knight, M.D.; H. P. Kuhn, M.D.; Paul H. Lorhan, M.D.; F. C. Neff, M.D.; Don Carlos Peete, M.D.; Carl O. Rickter, M.D.; E. H. Skinner, M.D.; O. R. Withers, M.D.; and Lawrence E. Wood, M.D. Eighth Edition. St. Louis: The C. V. Mosby Company. 1943. Price \$10.00.

The fact that this book has gone into the eighth edition is evidence that it must be a valuable one. Part I, containing twelve chapters, covers general therapeutics with the methods used in treatment. Part II, containing thirteen chapters, deals with special therapeutics with application to particular diseases. New subjects treated in this volume include intractable pain with cobra and bee venom, sciatica due to herniation of the nucleus pulposus, indications for surgery in hypertension, pneumococcal and influenzal meningitis, Kenny treatment of poliomyelitis, vitamin K therapy in prothrombin deficiency, new conceptions of fat metabolism, acidosis in diabetes, use of newer glycosides of digitalis and the newer insulins. This is a handy volume for obtaining the latest information on the therapeutic problems of internal medicine.

R. V. P.





Peace of mind costs only "pin money"

Sufficient Tincture Metaphen for the average surgical case now costs your hospital surprisingly little . . . no more, for example, than a package of cigarettes. Certainly a small price for a drug that has been rated "most effective" of fifteen antiseptic agents tested! That designation was applied to Tincture Metaphen by two impartial investigators after a series of comparative tests on the oral mucosa.* The investigators found that Tincture Metaphen 1:200 reduced bacterial count 95% to 100% within five minutes; caused only a slight irritation in a few cases, none in others; and had, in substantial excess over any other agent tested, a two-hour duration of action. Your hospital may now obtain Tincture Metaphen on more favorable terms than ever before.

Abbott Laboratories, North Chicago, Illinois.

*Meyer, E., and Arnold, L., (1938), Amer, J. Digest, Dis., 5:418.

Tincture Metaphen

(4-nitro-anhydro-hydroxy-mercury-orthocresol, Abbott)

INDEX TO ADVERTISERS

Abbott Laboratories	25
Bernheim Distilling Company Blakiston Company, The Borden Company Brewing Industry Foundation Burroughs Wellcome & Company 14	37 9
Camel Cigarettes Camp, S. H. & Company Canada Dry Ginger Ale, Inc. Cheplin Laboratories, Inc. Ciba Pharmaceutical Products, Inc. Ciba Pharmaceutical Products, Inc. Ciba Pharmaceutical Products, Inc. Commercial Solvents Corporation 12 Cook County Graduate School of Medicine	19 35 27 21 sert 13
Faith Hospital	30
Glenwood Sanatorium	35
Hamilton-Schmidt Surgical Co. Hanger, J. E., Inc. Holland-Rantos Company Hotel Reservations	28 15
Isle, W. E., Company	36
Lederle Laboratories, Inc. Lilly, Eli and Company Lov-E Brassiere Company	16
M & R Dietetic Laboratories, Inc. Major Clinic Association Mead Johnson & Company Medical Protective Company Milwaukee Sanitarium Mosby, C. V., Company Mullen Ambulance Company	5 42 35 1 20
National Pathological Laboratory Neurological Hospital, The Norbury Sanatorium	30
Ortho Products, Inc.	40
Parke, Davis & Company Philip Morris & Company Physicians Casualty Association Pogue, Mary E., School	29 28
Ralph Sanitarium	34
Schmid, Julius, Inc. Searle, G. D., Company 22 S.M.A. Corporation Squibb, E. R., and Sons Stearns, Frederick & Company Stokes Sanitarium	2 41 3
Tampax, Inc.	8
Wallace Sanitarium Wander Company, The Winthrop Chemical Company World Insurance Company Worrell, Dorothy Zemmer Company	18 11 36 36
	- T

BOOKS RECEIVED

MAURICE ARTHUS' PHILOSOPHY OF SCIENTIFIC INVESTIGATION. Preface to De l'Anaphylaxie a l'Immunite, Paris, 1921. Translated from the French, With an Introduction By Henry E. Sigerist. Foreword by Warfield T. Longcope. Baltimore: The Johns Hopkins Press. 1943. Price \$.75.

Synopsis of Obstetrics. By Jennings C. Litzenberg, B.Sc., M.D., F.A.C.S. Professor Emeritus of Obstetrics and Gynecology, University of Minnesota Medical School, Minneapolis. With 157 Illustrations, including 5 in Color. Second Edition. St. Louis: C. V. Mosby Company. 1943. Price \$5.00.

MINOR SURGERY. By Frederick Christopher, S.B., M.D., F.A.C.S. Associate Professor of Surgery at Northwestern University Medical School, Chicago; Chief Surgeon of the Evanston (Ill.) Hospital. Fifth Edition, Reset; with 575 Illustrations. Philadelphia: W. B. Saunders Company. 1944. Price \$10.00.

Synopsis of Materia Medica, Toxicology, and Pharmacology. For Students and Practitioners of Medicine. By Forrest Ramon Davison, B.A., M.Sc., Ph.D., M.B. Formerly Assistant Professor of Pharmacology in the School of Medicine, University of Arkansas, Little Rock. Medical Department, The Upjohn Co., Kalamazoo, Mich. Third Edition. With 40 Illustrations, Including 4 in Color. St. Louis: C. V. Mosby Co. 1944. Price \$6.50.

Gastro-enterology. (In Three Volumes.) Volume II. By Henry L. Bockus, M.D., Professor of Gastro-enterology, University of Pennsylvania Graduate School of Medicine and Colleagues at University of Pennsylvania Graduate School of Medicine. The Small and Large Intestine and Peritoneum. Diagnosis and Treatment of Disorders of the Small Intestine, Colon, Peritoneum, Mesentery and Omentum. Fully II-lustrated, Including Many in Colors. Philadelphia: W. B. Saunders Company. 1944.

Traumatic Injuries of Facial Bones. An Atlas of Treatment. John B. Erich, M.S., D.D.S., M.D. Consultant in Laryngology, Oral and Plastic Surgery at the Mayo Clinic; Assistant Professor of Plastic Surgery, The Mayo Foundation for Medical Education and Research, Graduate School, University of Minnesota; Diplomate of the American Board of Plastic Surgery. And Louie T. Austin, D.D.S., F.A.C.D. Head of Section on Dental Surgery at the Mayo Clinic; Associate Professor of Dental Surgery, The Mayo Foundation for Medical Education and Research, Graduate School, University of Minnesota. In Collaboration With Bureau of Medicine and Surgery, U.S. Navy. Philadelphia: W. B. Saunders Company. 1944. Price \$6.00.

Human Constitution in Clinical Medicine. By George Draper, M.D. Associate Professor of Clinical Medicine, College of Physicians and Surgeons, Columbia University; Associate Attending Physician, Presbyterian Hospital, New York; and C. W. Dupertuis, Ph.D. Physical Anthropologist, Constitution Clinic, Presbyterian Hospital, New York City; and J. L. Caughey, Jr., M.D., Med. Sci.D. Associate in Medicine, College of Physicians and Surgeons, Columbia University; Assistant Physician, Presbyterian Hospital, New York City. New York: Paul B. Hoeber, Inc. 1944. Price \$4.00.

THE JOURNAL

Missouri State Medical Association

The Official Organ of the State Association and Affiliated County Societies Issued Monthly under direction of the Publication Committee

COPYRIGHTED, 1944, BY MISSOURI STATE MEDICAL ASSOCIATION. ALL RIGHTS RESERVED.

VOLUME 41

MAY, 1944

Number 5

RALPH L. THOMPSON, M.D., Editor RAYMOND McINTYRE, Managing Editor HELEN PENN, Assistant Editor 623 Missouri Bldg., St. Louis, Mo. Telephone, Newstead 0404-05

PUBLICATION | RALPH L. THOMPSON, M.D., Chairman | M. H. SHELBY, M.D. | R. C. HAYNES, M.D. | VINCENT T. WILLIAMS, M.D.

A STUDY OF NEPHROSIS

MAJOR WALLACE H. GRAHAM, M.C.

KANSAS CITY, MO.

From various sources in recent years new facts have thrown light on many heretofore obscure conditions of specialized portions of the kidney. As the archeologist is enabled to construct a historical background through the fortunate discovery of a few telling fragments, so may the pathologist and physiologist venture to construct a definite picture of the findings in nephrosis and its differentiations from the other types of nephritis.

As the painter arranges the background on the canvas, so the pathologist and clinician with preliminary studies, alterations and much patiently done work combine facts to establish nephrosis as a definite disease.

Is it a true disease or is it merely a nephritic classification and a misnomer? Certain indelible lines which determine the final disposition of the background for this subject have been noted and observed since 1902 and first introduced, named and described by the German pathologist, Friedrich Muller. Muller first believed the definite characteristics of the disease only those of a degenerative kidney condition involving only the tubules as was designated in a paper he delivered to the German Pathological Society at Meran. Muller later noted this condition also to involve the glomeruli of the kidney.

Among the medical profession at large there has been a tendency to overlook what seemingly has been of minor significance in this phenomena of the kidney and to treat the condition merely as another form of nephritis; however, it is well observed that many are alive to the question of nephrosis. The situation is evidenced by the aroused interest which is apparent on all sides, some strenuously opposing a separate classification, others believing it to be a separate and definite disease and not merely a stage of glomerular nephritis.

As experience and actual practice is the only safe standard by which judgment may be valued, it is with much thought and deliberation that I, limited in experience, have analyzed and compounded with my experimental data and actual case studies, the discoveries, records and case histories of the actual works of the foremost investigators.

In 1905 Muller described the condition of the kidnevs known as nephrosis. Since then it has been studied and worked out by Wolhard and Fahr of Germany. Epstein of the United States later made a careful investigation of this condition; he named the disease "diabeticus albuminurious," while Loenthal, studying the same condition, named it "diabetes lipoid-proteinicus." A great many other investigators have made a careful study of this condition, some being unable to verify at postmortem the condition described by Muller and others.

The pathologic condition as described by Muller refers more particularly to an involvement of the proximal and distal convoluted tubules with no involvement of the glomeruli or other parts of the kidneys.

A study made at the Mayo Clinic by Edwin G. Bannick states, "no true lipoid nephrosis in adults has been demonstrated at any postmortem examination held at the Mayo Clinic," but states, "a true lipoid nephrosis may terminate in uremia due to the end stages of glomerular nephritis." In fact, one can hardly conceive of a severe pathologic condition existing in the proximal and distal convoluted tubules without some damage being done to the glomeruli.

There is no doubt but that this interference, plus the extension of inflammation, accounts for the findings of Bannick of the Mayo Clinic concerning which he states that a "true lipoid nephrosis may terminate in uremia due to the end stages of a glomerular nephritis."

It appears to me that nephrosis is but one stage in a parenchymatous nephritis, the same as a hunterian chancre in syphilis is but a stage in the dis-

It is true that the involvement of the convoluted tubules can be demonstrated as the initial lesion and will continue for a considerably longer period of time to be the only demonstrable pathologic condition; but, like many other diseases, if the condition exists long enough, other stages of the malady will manifest themselves.

If it were not for the fact that the other parts of the kidney, such as the limb and loop of Henle's arch, the straight collecting tubules as well as the glomeruli, were connected so intimately with each other and, in addition, having exactly the same blood, lymph and nerve supply as that of the convoluted tubules, one could understand the possibility of its being a separate and distinct disease. Quoting T. Izod Bennett, "Nephrosis is not a definite disease entity or a distinctive pathological lesion."

The condition known as nephrosis is more commonly found in children—much less frequently in adults, although it has been a complicating post-operative condition. The onset of the disease is insidious. Many times it has existed for weeks before being recognized. It is noticed that the patient complains of being weak. The color is pale. Sometimes the patient alternates in gaining and losing weight; later, indications of edema are noticed. The hydropic state becomes more pronounced many times within a few days. Edema and anasarca are present in extreme degree and can be accounted for only through failure of the kidneys to function properly. Rarely is the heart affected; there is no dilatation and the blood pressure remains normal.

Characteristic findings in the urine are the presence of albumin in large quantities and the absence of blood.

The protein found in the urine is the same as that found in the blood. There is also a change in the composition and content of the proteins found in the blood. At times there is as much as 50 grams of protein excreted by the kidneys in twenty-four hours.

The loss of protein, like the loss of sugar in a diabetic person, causes a rapid depletion in the patient and at times as low as 2 grams of protein to 100 cc. of blood are found. At such time there is considerable lipoid substance found in the blood and the blood serum has a milky appearance.

As a rule the blood chlorides are normal but the metabolic rate is from 10 to 30 per cent below normal.

The excretion of urine may vary greatly, there being present a polyuria alternating with oliguria, while in acute cases due to the partial occlusion of the proximal and distal convoluted tubules an anuria may develop.

The one urinary finding constantly present is the excessive amount of albumin found in the urine that many times persists after other symptoms have disappeared and the diminution in the amount of albumin generally indicates an improvement in the patient.

The loss of albumin in the urine depletes the patient and in chronic conditions causes them to become alarmingly anemic but, unlike the loss of sugar in patients with diabetes mellitus, there is no change in the metabolism of the carbohydrates; nor is there ketogenesis nor acidosis.

In the active stages of nephrosis there is a retention of water in the tissues but characteristic of the disease there is no retention of nonprotein nitrogen in the blood which differentiates this condition from other renal diseases.

Lande found that the basal metabolism and the amount of cholesterol found in the blood were in direct relationship to each other. While this association is found not to be constant, still the condition causing the increase in the lipoids of the blood produces the lowering of the metabolic processes.

An unusual finding in the free fat found in the serum of a patient with nephrosis is that it cannot be removed by either centrifugation or sedimentation, there being either a chemical or physical contact with the proteins of the blood which prevents its separation.

To decrease the fat content in the patients' diet does not change the proportion of fat found in the serum. This peculiar condition is rarely, if ever, found in any other disease.

Due to the rapid loss of the proteins, with no retention of nitrogen, some authors suggest an increase in the proteins and a lowering of the fats and carbohydrates in the patient's diet as one method of combating the disease. If this has any beneficial effect whatsoever it will be due to the improvement in the metabolic processes of the patient's body and not due to the peculiar arrangement in diet, no more than the increase of sugar in the diet of a diabetic patient will have any beneficial effect upon the pathologic condition of the islands of Langerhans in the pancreas of a patient suffering with glycosuria.

The clinical course of nephrosis, like that of all other diseases, varies greatly and is dependent upon the vitality of the patient, the ability of the patient's body to respond to the call for help and the kind and virulence of infecion causing the disturbance, along with the early recognition and the ability to remove the cause.

It has been noticed by Gladys L. Boyd and others that, if the onset be sudden, especially in patients who develop a cerebral edema, the attack is usually acute, running a course of but a few weeks with an ultimate disappearance of symptoms.

In a more insidious and gradual onset of the disease, in which the symptoms manifest themselves slowly, the disease runs a more chronic course involving months in which edema recurs many times and in some cases with but little relief from the edema or anasarca. It is these cases that ordinarily terminate in other involvements of the kidney and develop a true Bright's disease or an interstitial nephritis. In other words, a kidney affected with a nephrosis many times is but the first stage of a more severe kidney involvement. Such a gradual course and termination of nephrosis is ordinarily the result of a severe unidentified focal or systemic infection which has developed in a patient whose kidney function has been lowered, either through previous overtaxation of the kidneys or hereditary weakness of these organs. In other instances, the inability to locate the malady early enough, plus the inability of the patient or doctor to render the

proper care necessary to arrest the disease, causes a lowering of kidney function.

Nephrosis requires an early diagnosis, proper care and treatment just as does carcinoma, if the patient is to be saved. In nephrosis, as in a great many other pathologic conditions, the question arises, why are these portions of the tubular mechanism of the kidney affected first and continue for many months to be the only apparent diseased portions?

The most common organism demonstrated is the streptococcus. Why should this bacteria select the convoluted tubules and not the glomeruli or portions of the renal tubules? According to some writers, this is due to an affinity of the chemical substances, found in this portion of the kidney, to attract the toxin liberated by the bacteria.

If this assumption be true, what has changed the chemical composition of these tubules that would so attract this peculiar toxin at this time? It certainly is not a constant chemical composition of every normal convoluted tubule that does the damage. If it were, then every person subject to a streptococcus infection would develop nephrosis. This, of course, is not true for in many streptococcic infections with the focal infection derived from the same source the streptococcus has no influence or chemical affinity for the convoluted tubules in some patients but, instead, the chemical union, if it be such, will occur in the heart, liver, middle ear and almost any other organ of the body.

There must be some other predisposing factor that changes the chemical composition of the substances of the cells of the tubules which allows the union of the toxin of the streptococcus or other infections to unite and interfere with the normal functioning of the cells in this portion of the renal tubules.

The predisposing cause can be traced to two sources, the first and most common, heredity.

This opinion is based on the following line of reasoning: It is commonly thought that the formation and development of the ovum is in the ovary and the spermatozoid in the testicles. While this is apparently true, still the formation of the ovum and spermatozoid are dependent upon every individual tissue and organ in the body, from the lowest connective tissue cell to the highest parenchymatous cell found in the organism. If, for instance, the cells of the convoluted tubules in either the male or female have been of an inferior type for generations, in that part of the ovum or spermatozoid that is required in the formation, that portion of the organism is, as a rule, not up to par and in reality will never form a healthy, normal cell or group of cells if its ancestor has been deficient, thus carrying out the theory that a man's life is greatly determined years before his birth.

This being true, when the body has been subjected to undue strain or overtaxation, infective organisms gaining entrance to the body are attracted to and successfully attack the weakened portions of the organs invaded.

The second predisposing factor comes from injury

received by certain tissues or organs of the body after birth; for example, a contusion of a joint interfering with the free circulation of blood and lymph makes an ideal culture media for the tubercle bacillus to develop a cold abscess.

ETIOLOGY

Frequent head colds, bronchitis and gastro-intestinal disturbances often precede hydremia. Measles apparently is the most prolific source in the cause of this disease. Tubercular infection is another affection of the sinuses. Streptococcus aureus and albus frequently are found. Many other organisms are isolated. Sore throat, scarlet fever, pneumonia and syphilis are also causes, as well as injury to the kidneys caused by the poisoning of mercury and acids and other focal infections such as are found in mastoids. Some authors believe that it may be due primarily to blood proteins, thyroid or kidney disturbances from a previous form of nephritis or liver disturbance.

Monk's theory is that a general disturbance of chemical balance of the body colloids, with an increased osmotic pressure in the body fluids and cells, causes the water to be held in the cells abnormally.

Amyloid disease (kidney lesions which are the result of recurrent tonsillitis or scarlet fever) is seldom nephrosis and generally develops a glomerular nephritis.

Arthur M. Fishberg believes that urine containing a large amount of sugar or ketone bodies will set up such an irritation that in many instances it develops a diabetic nephrosis. Protracted jaundice, hemoglobinemia, pernicious anemia, Grave's disease, high intestinal and pyloric obstruction, cholera and influenza are produced in some cases by a disturbance in the metabolism.

Epstein advances the theory that cryptogenetic chronic nephrosis is caused by a disturbance in the metabolism of the body, in which the thyroid gland takes an active part. It is this disturbance in the metabolism that causes the patient to become weak and apparently anemic. The metabolism runs from 10 to 20 per cent below normal. There is a decrease in the blood plasma proteins and a considerable increase in cholesterol. It is this decrease in the protein of the blood plasma that causes the large amount of albumin to appear in the urine. The blood plasma contains proteins, fibrinogen and globulin. In the colloid osmotic pressure, it is through the molecules of these substances that the osmotic pressure is maintained. Each molecule of albumin has six times as great a colloid osmotic pressure as the osmotic pressure of a molecule of globulin. Through the effect of the constant osmotic pressure, which is produced by the plasma of the proteins, the water is held back and the blood continues to pass through the capillaries and the fluids are reabsorbed from tissue spaces. The plasma proteins are greatly lessened in nephrosis and thereby produce an edema by preventing a reabsorption of water. The loss of the plasma protein is caused

by the excretion of large amounts of albumin through the kidneys, thus producing a comparative fall in the colloid osmotic pressure. Protein output in the urine ranges from 18 to 27 grams and this deficit must be replaced because of the tremendous drain upon the blood serum.

PATHOLOGY

In the description of the pathologic findings which are undoubtedly a very important consideration in every disease, the following are the observations:

Kaiserling and Orgler in 1902 first described a "myelin" kidney in which they found a great deal of cholesterol in the cells of the tubules, which presents an oily, greasy appearance, a great deal of the cholesterol being present. The appearance of the cells and tubules show a degeneration of metabolic processes which indicates the permeability of lipoids and albumin; an amyloid kidney is found but no cardiovascular changes.

Bennett has found slight cardiac hypertrophy with the kidney showing some contraction but always a definite tubular involvement but no distinct pathologic lesions separating a nephrotic kidney from other renal disease.

In the twelve autopsies performed by me the kidneys were found to be enlarged and boggy, the capsule stripping easily with a smooth surface. The cortex in all instances was yellowish to grey in color. Microscopically, albumin was found in the capsular spaces and the glomeruli itself was relatively unchanged except for some cellular infiltration. The tubular epithelium was flat and contained refractile lipoids. The tubules, however, were engorged and swollen with necrotic coagulated masses of epithelium. All portions of the tubules were involved with perhaps a more gross involvement of the proximal tubules. Albumin and hyaline casts were found consistently in the tubules; however, in the true nephrotic kidneys no fresh blood was found.

In three studies made from chronic nephrosis, the glomeruli were involved and a greater degree of kidney epithelial degeneration was noted resembling the picture as shown by a chronic parenchymatous nephritis.

TREATMENT

As in all other pathologic conditions, the first effort is to locate the cause and remove it—such as infections found in different parts of the body. The most common of these infections are those of the teeth, tonsils and bony cavities of the body, as frontal and maxillary sinuses. The next step is to relieve the burden on the kidneys by keeping the body warm, making the sudoriferous glands more active, using hydragogue cathartics. The intake of liquids should be restricted to the smallest amount possible. The protein in the diet should be increased from 120 to 250 grams. If there be a deficiency in digestion and assimilation of proteins, either stimulation of the organs of digestion or an addition to the diet of pepsin with hydrochloric or nitrohydrochloric acid dilute, when needed, is in

order, care being taken not to increase the acidity of the urine more than is necessary. If there be edema or ascites the recumbent position is essential.

Concerning medication, a combination of heart stimulants and vasodilators, such as are found in the DeCosta formula, have been efficacious over a long period of time. For combating infection in nephrosis sulfathiazole and sulfamethylthiazole can be used in larger quantities than sulfanilamide because of lessened toxicity. The dosage is 1 gram four times a day. Care should be exercised to see that there is no liver damage and that jaundice does not exist following the use of the drugs. Urinary antiseptics are of but little value unless an active infection can be demonstrated to exist in the kidneys.

For the relief of edema or ascites there is no better medication as yet than the combination of heart stimulants and vasodilators as found in the nitroglycerin compound or DeCosta tablet, and an intramuscular injection of the mercurial preparation, always preceded by the free use of ammonium chloride or ammonium nitrate by mouth, from 90 to 150 gr. daily, as suggested by the Mayo Clinic. Free diuresis is impossible without it. These drugs render it less irritating to the tubules of the kidneys and prevent the toxic and irritating effect of the mercurial preparation, thereby enhancing its power not only of diuresis but as a urinary and intestinal antiseptic.

If transfusions are indicated and the red count is reasonably high, the use of blood plasma instead of the whole blood is of greater value, especially when there is a low protein content in the blood.

DIAGNOSIS

With the onset of nephrosis, the patient complains of weakness, tires easily and later shows signs of edema of the lower extremities and about the eyes. Edema, ascites, and, in some instances, double plural effusion and anasarca insidiously become intensified progressively until they are very much pronounced. The retinas of the eyes are unchanged. Blood pressure may be either normal or slightly subnormal. No dilatation of the heart or other cardiac involvement is noted. The patient appears to be anemic and the skin is pale. Examination of the urine shows a rapid and progressive proteinuria. Casts are usually present and at times the specific gravity is high. No blood is found in the urine. In true nephrosis, no uremic odor of the breath is present nor any signs of uremia unless there are other involvements of the kidney which never occur early in the disease. The blood total serum protein is 4 per cent or lower with a marked reduction in serum albumin and slight if any change in the globulin fraction.

The duration of the disease varies from weeks to years. The patient, however, recovers unless a more serious nephritis or secondary infection occurs. Approximately 76 per cent of all cases recover. In later life, the mortality rate is much higher if the nephrosis is due to syphilis or tuberculosis.

CONCLUSION

The consensus of opinion is that nephrosis is but a stage in the disease of the kidneys.

For weeks and sometimes months there is apparently no other involvement except of the proximal and distal convoluted tubules.

A pure nephrosis is seldom found but nearly always there is an involvement of the other parts of the kidney, more particularly the glomeruli.

The predominating effects on the body are the rapid loss of proteins, large amounts of albumin in the urine with no blood, lipoid bodies in the blood and edema very pronounced.

The conditions is more frequently found in children but may be found at any age and as a postoperative occurrence.

In complications of the disease, death is usually due to uremia and exhaustion.

Bannick, Edwin G.: Lipoid Nephrosis and Its Relation to Glomerular Nephritis, J. A. M. A. 102:172; 177-178 (Jan. 20)

1934.
Bennett, T. Izod: Nephrosis, Lancet 1:115-118 (Jan. 17) 1931.
Boyd, Gladys L.: Nephrosis in Children, Canad. M. A. J.

Bennett, T. Izod: Nephrosis, Lancet 1:115-118 (Jan. 17) 1931.
Bennett, T. Izod: Nephrosis in Children, Canad. M. A. J. 19:665-668.
Cattell, Henry W.: With collaboration of Charles H. Mayo, Rochester, Minn.; Sir John Rose Bradford, London, Eng.: What Is Nephrosis? Internat. Clin. 2:129-131.
Epstein, Albert A.: Albuminuric or Chronic Nephrosis, Medicina, Mexico 11:947 (Dec. 25) 1931.
Epstein Albert A.: Thyroid Therapy and Thyroid Tolerance in Chronic Nephritis, J. A. M. A. (April) 1923-1926, pp. 135-154.
Fishberg, Arthur M.: Hypertension and Nephritis, ed. 2, Philadelphia, Lea & Febiger, 1927, pp. 135-154.
Goudsmit, Arnoldus, Jr., and Binger, Melvin W.: Treatment of Nephrotic Edema, J. A. M. A. 114:2515 (June 29) 1940.
McCrae, Thomas: Osler's Modern Medicine, Philadelphia, Lea & Febiger, 1927, vol. 5. pp. 583-585.
Oxford Med. Pub., 1929, Nephritis, p. 30.
Prentice, Robert J., and Flocks, R. H.: Complications from Sulfanilamide Therapy of Urinary Tract Infections, J. Urol. 44:377 (Sept.) 1940.
Spink, Wesley W.: Sulfanilamide and Related Compounds in General Practice, Chicago, The Year Book Publishers, Inc., 1941, chap. 10, p. 134.
Volhard: Medical Clinics of North America, Philadelphia and London, W. B. Saunders Co., vol. 16, July 1932-May 1933, p. 675.

SEA BATHING AIDS CONVALESCENCE, TWO PHYSICIANS POINT OUT

Now is the time when the seashore begins to beckon. In The Journal of the American Medical Association for April 15 Charles I. Singer, M.D., Long Beach, N. Y., and Kenneth Phillips. M.D., Miami, Fla., cooperate to explain the health values of sea bathing. Their report is part of a study of health resorts made by the Committee on American Health Resorts of the American Medical Association. Sea water is a compound salt solution containing a great variety of metallic substances but absorption of these mineral substances into the body does not occur even with prolonged bathing. Therefore the chief values of sea bathing are attributed to the temperature of the water, the difference between the temperature of the skin and that of the water, the slightly irritant effect of the salt content on the skin, the mechanical stimulation by the waves of the surf, the effects on the body of exposure to air and sun after bathing and, finally, the effects of the sea breeze. Minor amounts of iodine in the air and the drinking water near the seashore also may have beneficial effects.

Among conditions which seem to be beneficially influenced by a stay at the seashore in summer are those in which the human being has been exhausted by the strain of modern life so that he is nervously exhausted. A seashore rest is also beneficial for convalescence after any disease that has helped to break down resistance.

DIAPHRAGMATIC HERNIA IN INFANCY

REPORT OF A SUCCESSFULLY OPERATED CASE

J. G. PROBSTEIN, M.D.

AND

J. DIAMOND, M.D.

ST. LOUIS

Until 1935 the literature reports indicated that operations on infants for the correction of congenital diaphragmatic hernia carried a very bad prognosis. At that time according to Truesdale,1 and Orr and Neff² only sixteen or seventeen cases of attempted operation in children under the age of 1 had been reported in the literature and only half had survived operation. With improvements in anesthesia and operative technic the number of successful operations has doubled and the mortality has been decreased considerably. Ladd and Gross³ report the largest series of cases, seven, less than 1 year of age who have undergone successful operation. Nevertheless, case reports are still scanty and the condition is of sufficient rarity to warrant the addition to the literature of another case with successful operation.

HISTORY

A white female infant, 8 months of age, was admitted to the Jewish Hospital on January 1, 1943, at 7:30 p. m.,



Fig. 1. Multiple gas bubbles distributed throughout entire left chest due to intestinal coils.

Aided by the Louis Monheimer Research Fund. From the Departments of Surgery, Jewish Hospital, Washington University School of Medicine, and the Department of Pediatrics, St. Louis University School of Medicine.



Fig. 2. Visualization of barium in left apex of chest.

with a history of cough, wheezing, fever and general irritability of three days duration. She had been treated at home for acute laryngotracheitis but with the onset of stridor she was sent into the hospital. There was no history of gastrointestinal disturbance prior to admission.

The family history was essentially normal. The only significant thing in the past history was an attack, three months before admission, of what was diagnosed as pneumonia. This disappeared rapidly a few days after onset. There were no congenital anomalies noted at birth and no history of trauma since that time. As far as was known the infant cried and breathed spontaneously after delivery.

Physical examination on admission revealed that the temperature was 104.8 F. rectally, the respirations were rapid grunting, accompanied by dilation of the nasal There was a frequent hacking cough. The skin was hot and dry. Examination of the head and eyes was essentially normal. The left tympanic membrane was red and bulging and the landmarks obliterated; the right was somewhat red but not bulging. There were thick crusts about the nares, the tongue was clean and the tonsils large and injected. The neck was normal. Examination of the chest revealed both lung fields were resonant, the breath sounds were vesicular but somewhat suppressed over the left chest anteriorly with a few high pitched expiratory rhonchi over this area. The heart sounds were rapid, of good quality, regular and free of murmurs. Examination of the abdomen, extremities and reflexes revealed nothing abnormal. A clinical diagnosis of bronchopneumonia and otitis media was made and sulfadiazine therapy instituted.

The following day the child appeared much worse; the respirations were increased in rate and labored. Examination of the chest revealed dulness to percussion posteriorly with breath sounds diminished to absent anteriorly and distant posteriorly. No intestinal sounds were audible over the left chest. The heart seemed to be pushed to the right. Radiographic examination of the chest at that time revealed multiple gas bubbles throughout the entire left chest with displacement of the heart to the right. The stomach was in the abdominal cavity (figure 1). The infant was given a small amount of barium by mouth and in a short time it could

be visualized in the left chest (figure 2). From these examinations a diagnosis of diaphragmatic hernia was made and immediate operation advised. Drs. Alfred and Laurence Goldman concurred in the diagnosis.

Operation was performed at 10:30 p. m. on January 2, 1943, using ether anesthesia. The abdomen was opened through a left rectus incision and the rectus muscle retracted laterally. An opening in the posteriolateral aspect of the left leaf of the diaphragm was found, triangular in shape and about 3 cm. high and 1 cm. at the base. Through this opening all the intestines from the jejunum at the level of the ligament of Treitz to the descending colon had passed into the left pleural cavity. There was no hernial sac. The other abdominal viscera were in their normal positions. These loops of bowel were reduced into the peritoneal cavity with some difficulty. The diaphragmatic opening was closed with six interrupted 0-20 day catgut sutures. The abdominal wall was closed in layers and four interrupted fishline stay sutures placed through and through. The child was returned to her room in fair condition and an air trap connected by needle to the left pleural cavity.

The postoperative course was quite stormy, the infant having bloody stools for the first four days following operation. The atelectatic left lung did not fully reexpand until about the eleventh postoperative day, although the day after operation it had expanded to a considerable degree. On the ninth postoperative day, soon after the stay sutures were removed, the wound disrupted. Omentum and intestine which had herniated through the wound, were replaced and secondary closure made. There were two short periods of paralytic ileus, one immediately following operation and the second after the secondary wound closure. After this the postoperative course was smooth although she had an elevated temperature until the twenty-second postoperative day. The patient was discharged on the

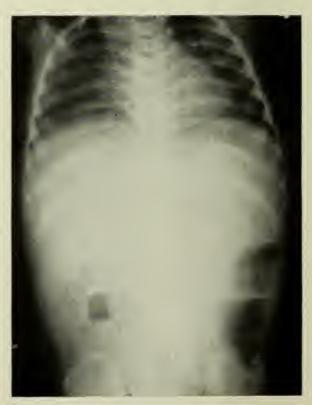


Fig. 3. Normal chest findings on discharge from the hospital on the thirty-fifth day.

thirty-fifth postoperative day in good condition, radiographic examination of the chest being quite normal at that time (figure 3).

During the patient's hospital stay she had received sulfadiazine from the time of admission until the fifteenth postoperative day and had also received four blood transfusions. Frequent urine examinations were essentially normal and her white blood count varied between 10,000 and 30,000, the highest being recorded before and immediately following operation.

The child has remained in good health up to the present time, November 1, 1943, with no evidence of recurrence of the hernia.

This case emphasizes the importance of immediate operation in congenital diaphragmatic hernia in infancy regardless of how futile the attempt may seem. This has been maintained by Ladd and Gross³ and Harrington.⁴ Delay in operation in this case would have been disastrous because of the extreme respiratory embarrassment. In addition, operation not only had to be performed under circumstances in which the cardiac and respiratory systems were functioning under difficulty but, also, in the face of acute infection of the upper respiratory tract. Either one of these conditions ordinarily is enough to warrant postponement of operative procedures until a more favorable time but, in this case, operation had to be performed because of the one condition and despite the other. It can be seen from this that no apparently hopeless set of circumstances should deter one from making an attempt to reduce the incarceration and close the hernia. All the clinicians who saw this child preoperatively agreed the prognosis was practically hopeless, either with or without operation.

CONCLUSION

A successful closure of a diaphragmatic hernia in an 8 month old child is reported. Immediate operation offers the only hope, regardless of any attendant complications.

405 Lister Building. 508 N. Grand Blvd.

BIBLIOGRAPHY

1. Truesdale, P. E.: Diaphragmatic Hernia in Children, New England J. Med. 213:1159, 1935.
2. Orr, T. G., and Neff, F. C.: Diaphragmatic Hernia in Infants Under One Year of Age Treated by Operation, J. Thoracic Surg. 5:434, 1936.
3. Ladd, W. E., and Gross, R. E.: Congenital Diaphragmatic Hernia, New England J. Med. 223:917, 1940.

4. Harrington, S. W.: Diaphragmatic Hernia in Children, Tr. South. S. A. 54:204, 1941.

WASHINGTON OFFICE OPENED

An Office of Information in Washington, D. C., was opened on April 3 by the Council on Medical Service and Public Relations of the American Medical Association, The Journal of the Association reports in its April 8 issue. It is located in Suite 900, Columbia Medical Building, 1835 I Street, Northwest. A large number of booklets, pamphlets and other published material are being sent to Washington, where they will be readily available to those desiring information concerning the various fields of medicine and the activities of the Association.

CASE REPORTS OF BARNES HOSPITAL

CLINICAL AND POSTMORTEM RECORDS USED IN WEEKLY CLINICOPATHOLOGIC CONFERENCES AT BARNES HOSPITAL, ST. LOUIS

W. BARRY WOOD, JR., M.D., and ROBERT A. MOORE, M.D., Editors

CASE 45

PRESENTATION OF CASE

B. P. C., a 53 year old, white married housewife, entered Barnes Hospital for the first time on September 29 and was discharged October 16, 1942.

Chief Complaint.—Asthma.

Family History.—Irrelevant. There was no evidence of allergy in the immediate family or forebears.

Past History.—The patient had been in apparently good health until the onset of her present illness. As a child, she was subject to headaches which lasted through adolescence. She had had no serious illnesses or operations. She had always been somewhat nervous and apprehensive and was inclined to worry a good deal. During the last few years she had been emotionally upset by her mother's chronic heart disease.

Present Illness.—Ten years previously, the patient had developed asthma. At first the attacks were mild and the intervals between them long. During the last four or five years the paroxysms increased in severity and frequency until they gradually became more or less constant. During the course of her asthma, she was troubled a great deal by nasal blockage and on several occasions had had polyps removed from her nose. This gave temporary relief. During the course of her illness, she underwent many examinations and it appeared that she was sensitive to opium derivatives, aspirin and a large variety of foods particularly wheat, milk products and eggs. More recently she had been found to be sensitive to house dust for which she received injections. Her attacks became continuous during the last six months prior to admission and she received adrenalin several times a day as well as other drugs. During that time, on a very restricted diet, she had lost 40 pounds in weight.

Physical Examination.—Temperature was 36.8 C., respiration 26, pulse 80, blood pressure 145/90. The patient was a thin, poorly nourished, poorly developed woman who looked older than her years. She was sitting up in bed complaining of difficulty in breathing; a distinct wheezing was heard. The eyegrounds showed no abnormalities. The nose was partially obstructed by a swollen, pale membrane. The tonsils were atrophic but not inflammed. The thorax was increased in the anteroposterior diameter and there was a markedly hyperresonant percussion note which obscured, in part, the heart borders. On auscultation, musical rales and rhonchi were heard. The heart sounds were of good quality, the rhythm was regular and there were no murmurs or accentuations. Examination of the abdomen revealed no abnormalities.

Laboratory Findings.—Blood count: red cells 4,950,000, hemoglobin 14.9 grams, white cells 9,550; differential count: eosinophils 7 per cent, "stab" forms 2 per cent, segmented forms 64 per cent, lymphocytes 19 per cent, monocytes 8 per cent. Urinalysis normal. Kahn reaction negative. Skin tests: slight to moderate reactions to numerous inhalant and food allergens. Electrocardiogram: myocardial damage on the basis of low T waves in lead I, inverted in lead 4F. Roentgenograms of the sinuses showed bilateral opacities of both maxillary antra. Those of the lungs were normal.

Course in Hospital.—The patient was seen by an otolaryngologist who found polypoid degeneration of the ethmoid sinuses on both sides. The maxillary antra were irrigated and Staphylococcus aureus was recovered on culture. The patient had no frank asthmatic attacks during her hospital stay. It was noteworthy that she drank milk and ate wheat without noticeable effect.

Second Hospital Admission.—Since previous admission, the patient's condition had grown progressively worse. She had spent many months in a hospital where she received various forms of treatment, none of which were more than temporarily effective. Her mother died seven months before admission and since then her paroxysms had become much more severe. A few months before entrance, the patient was given morphine in ¼ grain doses to relieve attacks and sometimes several injections were taken each day. She was admitted for further study and treatment.

Physical Examination.—Temperature was 37 C., pulse 88, respiration 24, blood pressure 106/60. The patient appeared poorly nourished. She was propped up in bed breathing with slight difficulty and there was some obvious wheezing. Slight cyanosis was present. The skin showed some loss of subcutaneous tissue. The eyes and ears presented no abnormalities. The nose was partially obstructed by a swollen, pink membrane and mucoid discharge. The tonsils were cryptic but not inflamed. The pharynx was injected and there were areas of lymphoid hyperplasia. The thorax was increased in all diameters. Breathing was entirely costal. Percussion note was hyperresonant throughout. On auscultation there were musical rales and rhonchi. Breath sounds were hypervesicular. The heart was recorded as being not enlarged, sounds were of good quality, there were no murmurs, the rhythm was regular and the rate 88. The peripheral arteries appeared normal. The abdomen was normal. At this stage of the examination the patient developed an asthmatic attack and examination was discontinued.

Laboratory Findings.—Blood count: red cells, 4,-890,000, hemoglobin 13.0 grams, white cells 9,200; differential count: eosinophils 6 per cent, "stab" forms 2 per cent, segmented forms 72 per cent, lymphocytes 15 per cent, monocytes 4 per cent. Urinalysis normal.

Course in Hospital.—The patient was admitted

at 8:30 a. m. She was observed on attending rounds at 10:30 a.m. At that time, she was sitting up in bed in no obvious distress. She was coughing frequently, sneezing mildly, and on auscultation musical rales and rhonchi were heard. At 12:00 noon she received one capsule containing ephedrine .015, amytal .03, acetylsalicylic acid .18 grams. She also received a liquid containing .5 grams of potassium iodide, and 4 cc. of the elixir of lactopepsin. There was evidently no untoward reaction from these drugs for, at 2:15 p. m. when the intern went into the room to take the patient's history and examine her, the findings were as stated in "Physical Examination." It was during this examination that the patient began to cough and developed an asthmatic attack. Three minims of adrenalin were given subcutaneously and the patient inhaled adrenalin from an atomizer beside her bed. She had used this frequently for some time. The asthmatic attack soon became severe. The patient sat on the edge of the bed. There was extremely severe coughing, the face was flushed and there was marked venous engorgement of the neck with each paroxysm. She became cyanotic and appeared very apprehensive. The intern left the room to get some aminophyllin. When he returned he found the patient in collapse. She was lying across the bed and her face and hands were cyanotic. No heart sounds were heard. Artifical respiration was started, CO₂ -O₂ given, tracheal suction applied and 2 cc. of adrenalin injected into the heart but she failed to respond and was pronounced dead.

CLINICAL DISCUSSION

DR. HARRY ALEXANDER: Death from the consequences of bronchial asthma is not uncommon. Death during a paroxysm is more unusual. Before considering the circumstances of this woman's death it would be well to say a little more about her. I saw her for about an hour a year ago, and again for a few minutes after she entered the hospital. She was a very high-strung, apprehensive person, intent upon her own symptoms. She had had many doctors and many forms of treatment and had been told that she was sensitive to a great variety of allergens. She was convinced that her asthma continued because of the great number of dangerous substances in her environment and that she could not avoid them all.

This type of asthmatic patient, the individual with no background or family history of asthma, whose asthma begins in the middle years, is conventional and characteristic. She had so-called intrinsic asthma, not truly allergic asthma. This does not mean that this patient may not have been sensitive to some things—possibly drugs—but she certainly was not sensitive to all the allergens she believed she was sensitive to. For example, she had been persuaded that she was sensitive to milk and dairy products, but when she received these foods in the hospital no attack followed. Her family told me when I first saw her that she was sensitive to opiates, but during her last six months she was given morphine and became addicted to it. The impression I got was that she was the typical nonatopic, or nonallergic asthmatic patient.

With this background we may consider her case. Dr. Goldman, what is the cause of death in asthmatic patients?

Dr. Alfred Goldman: They develop an emphysema.

Dr. Alexander: Yes, they all develop emphysema. The more intense and long-standing the asthma, the greater is the emphysema. What else?

DR. GOLDMAN: A certain percentage develop right heart failure, or cor pulmonale in the severe cases of emphysema. A small percentage, about 7 per cent, may die of bronchial asthma and mucous plugs usually are found in the bronchioles. They may die of

Dr. Alexander: Yes, if they die in an attack one expects to find the bronchi plugged with gelatinous, thick, sticky mucus, which occludes so many of the bronchi that they really die in asphyxia. Is there any difference pathologically between the lungs of a patient of

53 who dies of asthma and those of a child?

DR. GOLDMAN: There would be less chance of heart failure in the child. Children who die of asthma may

also have the plugs in the bronchi, however.

DR. ALEXANDER: There is not much known about this. Children with asthma have a true allergy. If they get too much horse serum, for instance, they do not have mucous plugs as older people do. The question is whether or not this is abnormal mucus. It is presumed that this mucus is an abnormal secretion. I would entirely agree with you that if a patient with prolonged asthma dies, one should expect to find in the lungs a great deal of emphysema, mucous plugs and possibly, lesions in the heart. Dr. Massie, will you interpret the electrocardiogram? The diagnosis was myocardial damage, I believe.

Dr. Edward Massie: This record was taken on the first admission so we do not have a record immediately preceding or during the acute episodes that led to the terminal state. This record shows the following not very marked changes: The T wave in I is not quite as high as one would expect, and in leads IVF the T wave tends to be inverted to diphasic. On the basis of those two changes one would make a diagnosis of myocardial damage. This record was taken a year before death; things may have happened in the ensuing months and certainly during the acute accident.

DR. KEITH WILSON: Was it taken during a paroxysm? DR. ALEXANDER: She had no paroxysms during her first stay in the hospital. Dr. Goldman suggested that these persons may have cor pulmonale. Dr. Smith,

what is cor pulmonale?

DR. JOHN SMITH: Cor pulmonale results from a chronic obstruction of the pulmonary circulation, which results eventually in hypertrophy of the right ventricle. The right ventricle may attain considerable thickness in this state and the person eventually may die of right heart failure with extreme venous congestion and a great deal of cyanosis. Another contributing factor to the failure of the heart in this state, as suggested by Vischer, is the rise of pressure in the right ventricle, and in the right auricle also, with resulting great impairment in the coronary circulation. In these hearts occasionally one observes very outspoken electrocardiographic pictures of myocardial anoxemia.

Dr. ALEXANDER: You speak of right heart enlargement in cor pulmonale. There is left heart enlargement also,

is there not?

Dr. John Smith: Yes, it has been shown pathologically and experimentally, but it does not attain the degree that right heart enlargement does.

Dr. Alexander: Is there such a thing as selective right hypertrophy without participation of the left side?

DR. JOHN SMITH: The left side usually participates to some degree, but right heart enlargement may be very much more extensive. In mitral stenosis there may be considerable right heart hypertrophy without left heart hypertrophy. That is true in many cases of cor pulmonale.

Dr. G. H. Schalk: Does not adrenalin sometimes produce inversion of the T waves in electrocardiograms?

Dr. Massie: On the contrary, it would produce a

tendency toward a higher amplitude of the T waves.

Dr. Alexander: I do not wish to appear stubborn, but I have never seen a truly selective right heart hypertrophy without a fair participation of the left heart. This is a matter of degree, of course. What is your opinion?

DR. HAROLD BULGER: I agree.

DR. ALEXANDER: Is it not true that many fibers of the heart muscle supply both ventricles? In experimental emphysema in dogs the first result is a right-sided dilatation. This is followed by right-sided hypertrophy, and very shortly by left-sided hypertrophy also.

DR. MASSIE: If you differentiate between the terms dilatation and hypertrophy, I will agree with you com-

pletely.

Dr. Alexander: Both dilatation and hypertrophy occur under these experimental circumstances. Now, in this case there is no cor pulmonale and only about one half of the patients with bronchial asthma who die have large hearts. If a patient dies in an attack of bronchial asthma with an apparently normal heart, will we expect to see anything else in the heart, Dr. Massie?

Dr. Massie: I do not believe so, because one cannot very well be sure of acute right ventricular dilatation postmortem unless special methods are taken to observe the heart when the chest is opened. Certain electrocardiographic changes are classical, and if we had had a tracing before the attack and during the attack we could be sure of what had happened.

DR. ALEXANDER: There is one circumstance about this woman's death that is unusual-it was very sudden. During the course of a physical examination she developed a paroxysm and was dead in ten minutes. That is very unusual. Are there any suggestions as to the mechanism?

Dr. Massie: Pulmonary embolism.

Dr. Alexander: If one had a pulmonary embolism from some remote thrombosis one could die very quickly. It would have to be a large embolus. What about coronary thrombosis or coronary embolism?

Dr. Massie: It does not kill as quickly as pulmonary embolism.

Dr. Edward Reinhard: Is it not true that a small pulmonary embolus may cause sudden death sometimes? It is supposed to be a reflex action.

Dr. Alexander: Yes, that is possible.

Dr. Massie: One does not see coronary thrombosis or embolism in patients who die of acute bronchial asthma. A sudden arrhythmia of a fatal type, such as ventricular fibrillation, might be thought of. Some acute right ventricular enlargement might result in coronary insufficiency.

Dr. Goldman: Three years ago Dr. Moore showed a case in which the cause of death was supposed to have been bronchial asthma. It was actually cerebral hemorrhage. There was an aneurysm of one of the cerebral arteries and it was assumed that the coughing had produced it.

Dr. Alexander: That is a possibility that should be considered.

Dr. John Smith: I wish we could clarify one point. The patient was lying across the bed, when found, and her face and hands were cyanotic. No heart sounds were heard. Was she still breathing?

Dr. James F. Tagge: I could hear no heart sounds and there were no respiratory movements.

Dr. John Smith: I was thinking of an overwhelming pneumothorax. That is rather rare, of course.

Dr. Alexander: There was one thing that alarmed me: this patient was said to be sensitive to drugs and she received drugs. It was said that she was sensitive to aspirin, alka-selzer, morphine, barbiturates and others. I did not consider that probable. Yet she was given ephedrine and aspirin and amytal in a capsule. She died very quickly, as one would die from extreme hypersensitivity. The one thing that is against the

probability of hypersensitive death in this patient is that death did not take place until two hours after the administration of the drugs. If a patient tolerates a drug for two hours it is not hypersensitive death. Such exquisitely hypersensitive individuals die within a few minutes.

DR. WILLIAM OLMSTED: What about periarteritis?

Dr. ALEXANDER: Periarteritis is a complication of asthma. If she did have it and died, the implication would be that she had lesions in her coronary arteries.

DR. OLMSTED: Or in the brain. It does not seem likely, though, with cyanosis.

DR. BULGER: This patient had a very high venous pressure. That suggests the possibility of such an increase of intrapulmonary pressure that there was no further inflow of blood to the chest, and that she died from lack of cardiac filling of blood.

Dr. Alexander: That is a very good point. If a guinea pig dies in anaphylactic shock with greatly distended lungs, the right auricle is almost empty of blood. That is why the blood pressure falls and the pulse gets weak during a severe paroxysm.

DR. BARRETT TAUSSIG: This patient may have received huge quantities of adrenalin. In a heart that is already damaged, adrenalin may produce fatal arrhythmias or coronary occlusion. Is that not so, Dr. Massie?

Dr. Massie: I think so, in a person who has coronary sclerosis.

 $\ensuremath{\mathsf{DR}}.$ Alexander: The effect of adrenalin is very transitory.

DR. TAUSSIG: She had it by her bed and frequently inhaled it.

STUDENT: You can put a dog into shock with excess adrenalin. She was getting it subcutaneously and intranasally.

DR. ALEXANDER: How do you put a dog into shock? STUDENT: There is an arterial constriction and if the capillaries, which are anoxic, dilate, there is an extravasation of serum which results in shock.

DR. ALEXANDER: There have been some very famous lawsuits wherein the family of the patient was plaintiff against an insurance company, maintaining that the death was accidental because the patient died soon after taking adrenalin. This has been thrashed out very thoroughly and there is no evidence that an asthmatic person who did not have severe cardiac damage ever died from adrenalin. Given intravenously, with a damaged heart, it may cause ventricular fibrillation.

STUDENT: This patient received a lot of morphine. How would that influence the spasm?

DR. ALEXANDER: Morphine is a bad drug to give in asthma because it induces spasm of the bronchi. Relief can be secured with other drugs. The asthma is often much worse, even in sleep, after the administration of morphine. Not a few patients have been found dead after morphine given in asthma.

Dr. John Smith: In any case of asthma I presume one should think of other causes of the wheezing such as that produced by mediastinal tumefaction. This film, taken long before death, does not preclude a tracheobronchial lymph adenopathy which pressed upon the hilum of the lung.

DR. ALEXANDER: The eosinophilia is somewhat against it, but the point you make is correct. A patient entered Children's Hospital a few days ago, and the doctor said the child had "one-sided asthma." It turned out to be histoplasmosis due to obstruction of a bronchus.

CLINICAL DIAGNOSIS

Asthma. Emphysema, obstructive.

DR. ALEXANDER'S DIAGNOSIS

Bronchial asthma. Emphysema.

ANATOMIC DIAGNOSIS

Emphysema of lungs (clinical history of bronchial asthma for twenty years and of death in acute asthmatic attack)

Obstruction of small bronchial branches by thick mucus.

Hemoperitoneum (1,000 cc.).

PATHOLOGIC DISCUSSION

DR. MARGARET SMITH: I have no very good explanation of the source of the hemorrhage. No actual bleeding point was found, and in our study of the sections of the organs in this case we find that there was no generalized vascular disease—such as periarteritis nodosa—that might have provided a possible explanation. We are left with the possibility that pressure changes resulting from her coughing may have been the cause of the hemorrhage, although I must say I do not recall ever having seen that occur.

DR. ALEXANDER: This is most unusual. I have never heard of this accident terminating bronchial asthma. It is interesting that a few minutes before death this patient received a physical examination. It was recorded that the abdomen was essentially negative. The large amount of blood could not have been in the peritoneal cavity a few minutes before death. She died of a very severe hemorrhage although the bleeding point was not found.

I had heard what had happened and when I discussed it with the house staff, Dr. Huelsmann recalled the "Valsalva experiment." The cough was extremely violent and the veins of the neck stood out. Little blood gets into the right auricle in such cases. After the cough a great deal of blood rushes in, the ventricles become overfilled and a great deal of blood is poured out into the peripheral circulation for several beats. Perhaps this woman's arteries could not stand the sudden strain. This seems to be a possible explanation.

CASE 46

PRESENTATION OF CASE

A white man, 35 years of age, was transported from China to a hospital in the United States and died thirty-five days after admission.

Chief Complaint.—Fever and night sweats.

Family History.—Not stated.

Past History.—Not stated beyond the fact that for nine months before the onset of his illness the patient had been in China.

Present Illness.—Four months before admission to the hospital in the United States the patient suddenly became ill with chills, night sweats and weakness. Anorexia became marked and during the first month of illness he lost 27 pounds in weight. At that time, because of continuing symptoms, he was forced to enter a hospital where the following observations were made: The initial temperature of 103 F. fell somewhat but rose each afternoon to between 100 and 101 F. The pulse was rapid. The patient appeared acutely ill. The skin was pale but no rash was present. The left tonsil was swollen and covered by a gray necrotic membrane. Further examination revealed nothing abnormal. Initial white blood count was 1,800, with 28 per cent polymorphonuclear leukocytes. The patient was given large doses of pentnucleotide and liver extract, but at no time did the white count rise above 5,600. The proportion of granulocytes remained low. After a period of three months in which no improvement was observed, the patient was returned by boat to the United States.

Physical Examination.—Temperature was 102 F., pulse 120, respiration 22, blood pressure 96/64, weight 54 pounds below normal. On examination the patient presented the appearance of acute and chronic illness. He was unable to get out of bed unaided. A protuberant abdomen and slightly puffy eyes stood out in marked contrast to the wasting of the arms and thorax. The skin was clammy and both skin and mucous membranes appeared pale. A deep necrotic ulcer occupied the left tonsillar fossa. The lungs were clear. No enlargement of the heart was made out by percussion; the rhythm was rapid but regular: the sounds were of good quality, and a faint blowing systolic murmur was heard at the apex. Abdominal palpation revealed a smooth, rounded, nontender liver edge two finger breadths below the right costal margin. In the left upper quadrant a moderately firm mass, thought to be the spleen, descended to the level of the umbilicus. Shifting dulness was present but a fluid wave could not be demonstrated. No abnormalities were detected on genital or rectal examination. The lower legs pitted slightly.

Laboratory Findings.—Blood count: red blood cells 2,540,000, white blood cells 1,250, segmented forms 30 per cent. Urine normal. Stool normal. Wassermann test negative. Blood albumin 2.1 gm. per cent; blood globulin 3.7 gm. per cent. Roentgen ray examination of chest and gastrointestinal tracts

gave normal findings.

Course in Hospital.—During the first twenty-nine days in the hospital there was little change in the patient's condition. Fever was present almost every day, frequently showing two spikes within the twenty-four hour period. The pulse varied from 90 to 140. Rest was frequently disturbed by a tight, irritative nonproductive cough. He occasionally complained of pain and tenderness over the left side of the abdomen, and several nosebleeds occurred which were controlled with difficulty. Liver extract and pentnucleotide were continued, and five blood transfusions were given without obvious benefit. Daily blood counts were performed during his stay in the hospital. The leukocytes varied between 1,000 and 4,000 with a persistent reduction of the granulocytes to approximately 30 per cent. The urine occasionally showed a faint trace of albumin but otherwise remained normal.

On the thirtieth hospital day, the temperature rose suddenly to 104 F. The patient complained of generalized aches and pains, and a macular eruption made its appearance over the abdomen and chest. By the following day, the patient was complaining of severe bursting headache. At this time examination revealed slight inequality of the pupils, marked rigidity and retraction of the neck, a few small petechiae were seen on the back and abdomen, and twitching of the muscles. Vomiting recurred frequently. On the thirty-third day in the hospital the white blood count had risen to 12,800 with 55 per cent polymorphonuclear leukocytes.

The patient could not be aroused. Cutaneous hemorrhages were more numerous, and about the mouth and nostrils were seen several clusters of small vesicles. Lumbar puncture was productive of grossly cloudy spinal fluid under increased pressure. From this time on the patient's condition became worse rapidly. Death occurred two days later.

CLINICAL DISCUSSION

DR. W. BARRY WOOD, JR.: Since this case has been imported from China, I think it is fair to assume that the primary disease is probably one that is not endemic in St. Louis. This patient was ill for about four months, and finally died in a hospital in California of a relatively acute illness. Are there any suggestions as to the nature of the primary disease, which he probably acquired in China?

Dr. Bertrand Glassberg: Kala-azar.

Dr. Wood: What does the word kala-azar mean?
Dr. HIROMU TSUCHIYA: It means black disease or black

DR. Wood: Why is it called that?

Dr. Tsuchiya: Because of the pigmentation of the skin that occurs in Caucasian patients with this disease.

DR. Wood: Are there any other suggestions as to what this man's disease might have been? Could it only have been kala-azar?

Dr. Barrett Taussig: The story seems typical of kalaazar, but one might possibly consider relapsing fever.

Dr. Harold Bulger: Or malarial cachexia. Or the possibility that he had both malaria and kala-azar.

Dr. Wood: Dr. Tsuchiya, should we consider anything else?

DR. TSUCHIYA: Schistosomiasis is a very remote possibility.

DR. Woop: Yes, because of the large spleen and liver, the chronic course, and the fact that the patient was stationed in the Orient. Do all the students agree that this is most probably kala-azar? What is another name for the disease?

STUDENT: Dumdum fever.

DR. Wood: It was first described in a patient thought to have acquired the disease at Dumdum, India. What is a third name for the disease?

STUDENT: Leishmaniasis.

Dr. Wood: Yes, and this name of course is associated with the causal agent. I am sure that most of us are not very familiar with kala-azar, but we have some experts in tropical disease with us this morning. Dr. Tsuchiya, will you tell us something about the occurrence of this disease in different parts of the world?

Dr. Tsuchiya: It occurs chiefly in China, particularly in the northern part of China and Manchuria, and sometimes around Canton. It also occurs in western India and on the eastern coast of Africa and in Asia Minor. It also occurs on the southern coasts of European countries, Italy and Spain.

Dr. Wood: Dr. Russell, can you tell us something

about the causal agent?

Dr. William Russell: It is a type of parasite that has an affinity for the reticulo-endothelial system—*Leishmania donovani*. It does not usually kill the cells, but it causes great distortion of them. It is an intracellular parasite in most instances.

DR. Wood: Does the disease occur in only one form? DR. RUSSELL: No, there are various forms. The visceral type has been mentioned here. There is also the cutaneous form in which it and to tell the organism morphologically from the type that produces visceral leishmaniasis. It produces localized lesions in the skin, and only rarely in the viscera. It is called tropical ulcer or New World leishmaniasis.

Dr. Wood: Are the organisms easily seen at autopsy? Dr. Russell: Yes, they are conspicuous in the phago-

cytic cells of the liver, the Kupffer cells. In lesions of the skin they are in the endothelial cells of the blood vessels. Differentiation between this organism and the protozoa of the toxoplasma type is sometimes a little difficult, but the greater size of the leishmania and the finding of the kinetoplast are distinguishing features.

DR. Wood: Is the kinetoplast that you speak of diag-

nostic?

Dr. Russell: Yes, if you can make it out. It is usually seen best on smears. It is composed of the parabasal

body and the blepharoplastic granule.

DR. Wood: Dr. Russell, in the monograph that I read about the disease that you have been describing, another kind of organism was mentioned, supposed to be a form of this same organism but having a flagellum. What is that?

Dr. Russell: That is the leptomonad form seen in culture. If this organism is put on a certain type of culture medium, it will assume that form, which resembles a trypanosome. The flagellum is at the most posterior part.

Dr. Wood: Dr. Tsuchiya, how is this disease transmitted?

Dr. Tsuchiya: The method of transmission is not known definitely, but the consensus of opinion is that Phlebotomus, the sandfly, is the transmitting agent. The organism is found in that fly. Experimentally, infection has been transmitted by these flies and some other insects. In bedbugs and ticks the organism has sometimes been demonstrated. But since we are not absolutely certain that this is the mode of transmission, we should hesitate to make a statement. It might even be transmitted by droplet infection. The Chinese hamster, which is a very susceptible animal, seems to acquire it by droplet infection.

DR. Wood: What form of the organism is present in

the sandfly?

DR. TSUCHIYA: The leptomonad form.

Dr. Wood: Where does it thrive in the insect?

 $\ensuremath{\mathsf{DR}}.$ Tsuchiya: In the body fluids, in the gastrointestinal tract.

Dr. Wood: Let us now consider for a moment the clinical features of kala-azar. Dr. Taussig, what are some of its clinical characteristics?

DR. TAUSSIG: The incubation period tends to be rather longer than in most other tropical diseases—about two to four months is the average.

DR. Wood: But the data are not very conclusive, are they?

DR. TAUSSIG: No. The disease is characterized by fever that is variable but frequently shows two rises in one day, as described in this patient.

Dr. Wood: In what other diseases does double diurnal fever occur?

DR. RUSSELL BLATTNER: Gonococcal endocarditis and malaria. Those three diseases are the only ones I have ever heard of which sometimes cause a rise in fever twice a day.

DR. Wood: What other features are important besides the fever? Dr. Tsuchiya has mentioned the changes in the skin.

DR. TAUSSIG: There is gradual enlargement of the spleen. It may reach immense size after some months.

Dr. Wood: Would you expect this change from what Dr. Russell has said about the pathogenesis of the infection?

DR. TAUSSIG: Yes, since reticulo-endothelial cells are numerous in the spleen. The liver also enlarges to some extent.

Dr. Woop: This patient had other clinical signs. Dr. Walsh, this patient had an ulcer in the tonsil. Is that characteristic?

Dr. Theodore Walsh: Lesions of the mucous membrane of the mouth may be associated with kala-azar. Cancrum oris (or noma) is not infrequently a serious complication.

Dr. Wood: Do you think that the tonsillar ulcer is compatible with the diagnosis?

Dr. Walsh: Yes.

Dr. Wood: Dr. Goldman, is a cough a common symptom?

Dr. Alfred Goldman: Yes, it has been described in kala-azar.

Dr. Wood: How about the diarrhea?

DR. HAROLD SCHEFF: That has also been described.

DR. Wood: The presence of diarrhea may sometimes make the differential diagnosis between schistosomiasis and kala-azar difficult. These patients sometimes bleed, do they not?

DR. CARL Moore: Yes, purpura and bleeding from

the mucous membranes is common.

DR. Wood: Do you think this patient's terminal illness with the rash was the result of kala-azar?

DR. CARL MOORE: It could have been, but I thought he might have had a septicemia with a secondary invading organism as a result of decreased resistance.

DR. WOOD: What are the laboratory findings in this

disease, Dr. Moore?

DR. CARL Moore: First, an anemia, which is usually not lower than two million cells. It has been described as an anemia resembling pernicious anemia, so I suppose it is either normocytic or macrocytic. The ideas about its cause are two: one, that it is a mild hemolytic anemia and, the other, proposed by Hugh and Cash, that it is a myelophthisic type resulting from the crowding out of the erythroid elements in the bone marrow by the phagocytic cells filled with Leishman-Donovan bodies.

DR. Wood: What other laboratory findings are charac-

teristic?

DR. CARL MOORE: There is a leukopenia associated with a neutropenia and, as Forkner pointed out, in 25 per cent of cases there may develop a true agranulocytosis. The neutrophils may contain phagocytized organisms as well as the monocytes and other phagocytic cells. I could not find any statement about the platelet count.

Dr. Wood: I believe that the platelet count was between 50 and 100 thousand in the cases studied by Keefer in China. Dr. Moore, can you suggest the patho-

genesis of all these findings?

DR. CARL Moore: They may all be a part of one process—myelophthistic anemia.

Dr. Wood: Dr. Russell, do you agree with that explanation?

DR. RUSSELL: Yes. The diarrhea might be from involvement of the spleen and liver or from involvement of the gastrointestinal tract. The organism has been found in the stools on certain occasions.

Dr. Wood: Dr. Tsuchiya, how is the organism cultured?

DR. TSUCHIYA: It may be cultured on special media containing blood and liver and incubated at room temperature. This medium is used for trypanosomes as well as for leishmania.

Dr. Woon: There are other ways of making the diagnosis. One may recover the organism by inserting a needle into the spleen. What do you think of that procedure, Dr. Moore?

DR. CARL MOORE: Many have used it, but I have always been afraid to do it because I have seen two autopsies in which there was blood in the peritoneal cavity after such a procedure.

Dr. Wood: If you had to choose between the liver

and the spleen, which would you choose?

DR. CARL MOORE: I would choose the bone marrow. DR. Wood: That is obviously the best answer. The bone marrow is safer and the chance of getting the organism is just as good. If you had to choose between the liver and the spleen, would you take the liver?

DR. CARL MOORE: No, I think I would choose the spleen.

DR. Wood: Some people think the liver is a little safer. Most of these patients die if they are not treated adequately with antimony compounds. Dr. Harford, how do they die?

Dr. Carl Harford: Usually from secondary infection. DR. WOOD: Dr. Moore said that they have a lowered

resistance. Do you agree?

Dr. Harford: If the reticulo-endothelial system has anything to do with resistance, and it must have because it phagocytizes infectious agents, I should think

the resistance might well be lowered.

DR. WOOD: Is there any experimental evidence that patient with kala-azar is immunologically different from the normal individual? This question has been studied using typhoid vaccine as an antigen. Patients with kala-azar given typhoid vaccine did not show a good antibody response. That is not conclusive evidence, but it has some significance. Do these patients have an abnormal blood protein?

Dr. HARFORD: They have increased globulin.

DR. Wood: Dr. Moore, where does the globulin come from?

DR. CARL MOORE: Some people think it comes from the reticulo-endothelial cells. It may come from the

DR. WOOD: Are plasma cells increased in the bone

marrow in kala-azar?

Dr. Carl Moore: I believe they are.

Dr. Wood: Everyone seems to agree that this patient had kala-azar. But he died very suddenly with a high fever, rash, headache, stiff neck, high leukocyte count and coma. He had a cloudy spinal fluid. Dr. Jones, what did he die of?

Dr. Andrew B. Jones: Meningitis.

DR. WOOD: Do meningitides occur in leishmaniasis, Dr. Russell?

Dr. Russell: No. I do not believe so.

DR. JONES: If the cloudy spinal fluid is from blood, the meningitis is from bleeding; if it contains cells, it is an infection.

DR. WOOD: We have no further description of the spinal fluid other than that it was cloudy. Dr. Blattner, what do you think was the cause of the meningitis?

DR. BLATTNER: A rash of this type occurs in menin-

gococcal infection.

DR. Wood: Would it be likely for a patient entering a hospital in March to contract meningococcal meningitis?

Dr. Blattner: Yes. Other patients and members of the staff might have been carrying the meningococcus at that time.

DR. Wood: Does anyone disagree with this as the final diagnosis? Dr. Olmsted, do you think meningococcal meningitis was the terminal event?

Dr. William Olmsted: Yes.

Dr. Wood: Then our final diagnosis, Dr. Moore, is kala-azar with terminal meningococcal infection.

CLINICAL DIAGNOSIS

Kala-azar.

Meningococcal meningitis.

DR. WOOD'S DIAGNOSIS

Kala-azar. Meningococcal meningitis.

ANATOMIC DIAGNOSIS

Visceral Leishmaniasis (Leishmania donovani present in smears from spleen, liver and bone marrow and cultured from the spleen.)

Rupture of the spleen.

Hemoperitoneum.

Splenomegaly, (2,280 grams). Hepatomegaly, (2,470 grams).

Acute purulent leptomeningitis (Neisseria intracellularis).

PATHOLOGIC DISCUSSION

DR. ROBERT MOORE: There is little to be added concerning the pathologic anatomy. The liver and spleen were enlarged greatly and the cells of the reticuloendothelial system contained large numbers of Leishman-Donovan bodies. The cultures made of the spleen at the time of autopsy revealed Leishmania donovani. A culture of the meninges grew out the meningococcus.

The essential pathologic change in visceral leishmaniasis is extreme hyperplasia of reticulo-endothelial cells and parasitism of these cells. This occurs especially in the spleen, liver, lymph nodes and bone marrow. The first three are enlarged while the bone marrow appears gray and cellular.

We are indebted to the Army Medical Museum for the history and tissues in this case.

ABSTRACTS AND DIGESTS

IVY DERMATITIS

Evaluation of Measures for Prevention of Ivy Dermatitis. J. B. Howell. Arch. Dermat. & Syph. 48:373 (October) 1943.

To determine the effectiveness of some of the recently endorsed prophylactic ointments and some of the older empiric protective remedies recommended for the preventition of dermatitis caused by contacts with poison ivy, the following observations were made:

Fresh green leaves of the poison ivy plant were gathered by a person not sensitive to the plant. A portion of a leaf was bruised by rolling it between the thumb and each finger, depositing as nearly as possible an equal amount of the oleoresin upon each finger; the bulbs of all fingers were then rubbed together to equalize the distribution of the oleoresin still further. Experimental exposure to poison ivy was then accomplished by a single light stroke on the volunteer's skin with a contaminated finger. No visible stain or moisture could be seen on the fingers or the stroked area. In the clinically sensitive person the ensuing dermatitis approximates closely the usual reaction following ordinary exposure—a band of dermatitis varying from erythema to vesiculation. Because most clinically acquired ivy dermatitis results from contact with ivy contaminated hands this method of testing closely approximated the accidental contact with the plant.

Soap and Water.-Two areas were prepared on the volar surface of the forearm of a volunteer. In separate observations, one was washed vigorously with laundry soap and running water, one, five, ten, fifteen, thirty, sixty and one hundred and twenty minutes after contact with the contaminated finger; the other site was unwashed thereby acting as the control observation. In the mildly sensitive subjects, when the elapsed time between contact and washing was one minute, complete protection was attained in most instances; in the moderately sensitive, the reaction was reduced; in the highly sensitive, there was no difference in the washed and unwashed sites. When the elapsed time was five

minutes the dermatitis was somewhat milder than at the unwashed sites in four of the nine volunteers; when the elapsed time was more than five minutes the dematitis was of equal severity at the washed and control sites.

Ferric Chloride.—The backs of volunteers were stroked with the different ivy contaminated fingers in six places, 10 cm. apart; a 10 per cent solution of ferric chloride was applied to the sites at intervals of five, ten, fifteen, twenty and thirty minutes. In no instance was the resulting dermatitis at the treated sites any different from that at the control sites. On several occasions the dermatitis at the five and ten minute site was slightly delayed, but not reduced in severity. Ferric chloride in an ointment base, 10 per cent calamine, 10 per cent zinc oxide and 10 per cent talcum, all incorporated in the same ointment base as the ferric chloride, applied to the skin previous to contact with the ivy contaminated fingers, in separate experiments, resulted in reduced cutaneous reaction as compared to the control site. The ferric chloride ointment gave no more protection than an inert substance in the same ointment base.

The protection obtained is that of mechanical covering and not to chemical neutralization of the dermatitis producing fraction of ivy by ferric chloride.

Potassium Permanganate.—The backs of volunteers were prepared in the same manner as described for the trials with ferric chloride. An aqueous solution of 10 per cent potassium permanganate was applied at various intervals of time, and the sites touched with ivy contaminated fingers.

When it was applied after an elapsed time of from five to ten minutes, the dermatitis was prevented in most instances and lessened in others. In highly sensitive subjects, when applied after an elapsed time of fifteen minutes, there was no diminishment in the severity of the dermatitis; there was a decrease in the severity of the reaction in less sensitive subjects, although it was not entirely prevented in a single instance. In three mildly sensitive volunteers, the severity was modified by its application thirty minutes after exposure. No change in the intensity of the dermatitis occurred when the elapsed time was forty-five, sixty, one hundred and twenty, one hundred and eighty and two hundred and forty minutes.

Sodium Perborate Ointment.—The left side of the back was smeared with this ointment; the right side of the back was similarly smeared with the same ointment base in which 10 per cent of an inert powder was substituted for sodium perborate. The ivy contaminated fingers were streaked across the treated areas at six different sites on each back. Control tests were made simultaneously beyond the smeared areas.

Dermatitis was not prevented in a single instance and was no less severe at the sodium perborate sites than at the sites covered with the inert substances. In two highly sensitive subjects the dermatitis became widespread because the dermatitis producing factor was soluble in the oils incorporated in the ointment.

White Petrolatum.—When used as a protective covering previous to contact, the resulting dermatitis did not remain localized to the contaminated site and widespread involvement of the surrounding regions occurred, due to the solubility of the ivy oleoresins in oily mediums.

Comment: The author remarks on the unreliability of field trips as a determinant of the effectiveness of protective measures because one is never certain that contact has been had with bruised leaves; one is in agreement with the premise and the reported experimental observations are valid by having reproduced one of the methods of contact.

The author's conclusions are: "There is no suitable topical prophylactic substance for preventing poison ivy dermatitis or for mitigating the eruption after contact has occurred. From experimental studies, a 10 per cent solution of potassium permanganate prevented or diminished the severity of ivy dermatitis in most instances if employed during the first fifteen minutes after exposure.

"Thorough washing with soap and water and preexposure anointing of the skin with white petrolatum, 10 per cent ferric chloride ointment, or 10 per cent sodium perborate ointment, or the use of 10 per cent solution of ferric chloride, after exposure to the plant did not prevent ivy dermatitis."

CHARLES H. EYERMANN, M.D.

INADEQUATE DIETS AND NUTRITIONAL DEFICIENCIES IN UNITED STATES

The Committee on Diagnosis and Pathology of the Food and Nutrition Board of the National Research Council has reviewed material reported in widely scattered journals on the state of nutrition of the people of the United States. An appreciable percentage of diets fail to meet more than 50 per cent of the recommended daily allowances of the Food and Nutrition Board, but many more diets are deficient by less than 50 per cent, emphasizes The Journal of the American Medical. Association for April 15. This widespread prevalence of more or less deficient diets is associated with a high incidence of deficiency states, largely mild in intensity and gradual in its course. The problem thus created is both preventive and corrective. For prevention, production of sufficient food must be maintained and better distribution is required; judicious enrichment of appropriate foods may be advisable, and dietary education should be intensified and extended. For correction there is need for skill in detecting deficiency conditions and improved procedure for the treatment of such conditions. There has been some exaggeration of the benefits of optimal nutrition and much exploitation of the vitamins. This has retarded the proper application of the science of nutrition. However, knowledge of the relation of nutrition to health is being rapidly uncovered. The evidence now available, incomplete though it may be, leads to but one conclusion: that "there is a real difference as measured in terms of growth development and general health record between optimum and just adequate nutrition; and that every practical effort should be made to apply this knowledge in the interest of human welfare."

THE JOURNAL

of the

Missouri State Medical Association

623 Missouri Bldg. Telephone: Newstead 0404-05

Subscription - - - \$3.00 a year in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent.

MAY, 1944

EDITORIALS

HOSPITAL STATISTICS

By careful administrative management, coordination of services and skilful utilization of available facilities and personnel the increased demands of the wartime period on the hospitals of the United States have been met, The Journal of the American Medical recently stated in an editorial summarizing the annual report of the Association's Council on Medical Education and Hospitals.

"In war as in peace," The Journal says, "the hospitals of the United States continue to render faithful and efficient service to the sick and injured of the nation. The tremendous task they assume under wartime conditions is illustrated in the annual hospital report. . The number of patients admitted in 1943 reached the unprecedented total of 15,374,698, as compared with 12,545,610 in 1942. In addition, there were 1,924,591 hospital births, an increase of 253,992 over the previous year. Similarly the daily patient load or average census increased by 131,096, not counting newborn infants. Equally impressive is the expansion of hospital beds from 1,383,827 in 1942 to 1,649,254 in 1943. This increase of 265,427 beds is the equivalent of a new 727 bed hospital for each day of the year. When this recent growth is compared with the average annual increase of 25,000 to 30,000 beds in the twenty year period that preceded the war, the extent to which hospital facilities have been developed in relation to wartime needs may be better appreciated.

"The greatest gain has naturally occurred in the federal group, whose admissions increased by 2,356,885 in the last year. Significantly the state, county and municipal hospitals showed a decrease of 103,733, while the nongovernmental group comprising the church related institutions, other nonprofit associations and the proprietary hospitals had a substantial increase of 575,-936. Although several factors may be involved, the influence of improved economic conditions is clearly evident in the changes that have occurred in the nonfederal hospital groups. The general hospitals constitute the largest division in the classification of hospitals according to type of service. They have 51 per cent of the bed capacity but received 94 per cent of all patients admitted in 1943. There participation in the recent expansion of hospital service can be measured by an increase of 2,820,350 admissions during the year.

The hospital report lists 6,655 registered hospitals, a net increase of 310 over 1942. The largest gain occurred in the federal group which now consists of 827 hospitals as compared with 474 in 1942. The other governmental

groups—state, county, city-county—gained 7 hospitals, and the nonprofit organizations 30. The number of proprietary hospitals was reduced by 80.

The number of admissions in registered hospitals represented an increase of 22.5 per cent over 1942. Ninety-four per cent of all patients admitted to the registered hospitals in 1943 were admitted to general hospitals.

Patients entered hospitals in the United States last year at the rate of one person every two seconds. In the same annual period 11.6 per cent of the entire population of the United States, on the basis of the 1940 census, received inpatient hospital care.

Of considerable importance is a new feature in the hospital report containing the results of a study of hospital facilities for contagious diseases. It reveals that 1,649 hospitals provide 39,282 beds for this purpose. These facilities are in addition to 8,313 beds available in 55 isolation hospitals. The number of hospitals devoted to the care and treatment of contagious diseases has decreased from 98 in 1927 to 55 at the present time. There has also been a decrease in bed capacity during this same period. However, the number of beds shows an increase of 2,034 in comparison with 1942. Admissions have varied from 30,279 in 1939 to 49,570 in 1943, the latter representing a gain of 11,634 over 1942.

During the last year 456 new institutions were admitted to the Hospital Register, whereas 146 were closed or transferred to the unclassified file. The report says that at the present there are seventy-six applications pending in regard to hospital registration.

There is a group of 523 hospitals which, according to information received, do not maintain a service in accordance with the requirements outlined in the general standards of the Council. These hospitals have only 15,215 beds, or less than 1 per cent of the total capacity of all hospitals. It is also pointed out in the report that certain other facilities are also omitted from the Register, namely clinics, emergency stations, offices, and so on, where bed care may be available as occasions demand. Many of these unclassified units constitute valuable auxiliary facilities in a community, even though their capacity may be limited to only a few beds.

The report explains that a net loss of 80 hospitals in the proprietary group may in part at least be accounted for by such institutions discontinuing their service because they were small and apparently had difficulty in securing sufficient personnel. In some instances the closing of individually owned hospitals became necessary when the physician in charge left to enter military service

Of particular significance is the revelation in the report that more than 96 per cent of the births reported in 1943 were in general hospitals, while 3.4 per cent occurred in maternity hospitals. It is also pointed out that the nongovernmental hospitals had 85 per cent of the births while the governmental group had 15 per cent.

Another interesting aspect of the report is the fact that in the registered hospitals it was found that physicians serve as administrators or superintendents in 2,654, registered nurses in 2,258 and other persons in 1,743. There has been a decrease of 9 nurse superintendents since 1942, while the classification of physician superintendents shows a gain of 374.

As to nursing personnel in the registered hospitals, the reports reveal that they employ 113,424 graduate nurses on nursing service, 13,167 other graduate nurses, 17,309 practical nurses, 34,801 nurses' aides, 92,427 attendants and 31,140 orderlies. Compared with 1942 the number of graduate nurses employed for nursing service decreased by 6,690, practical nurses by 4,852 and attendants by 1,706. However, the number of orderlies increased by 5,283.

As for schools of nursing education, the report lists 1,411 as accredited by the respective state boards of nurse examiners as compared with a 1942 total of 1,439.

Tentatively approved schools are not contained in the list. Although the number of accredited nursing schools decreased, a total of 110,222 student nurses were enrolled, an increase of 12,056 over 1942.

RANDOM OBSERVATIONS BY A ROVING REPORTER

Ultraviolet lamps have been seen in some strange places, usually useful only to make a nice violet light. Perhaps the next is on the backs of the seats of the movie theaters. In a large city during an epidemic of ringworm of the scalp, fungi were demonstrated on the upholstery.

Orchids for the month to the Medical Corps of the United States Army. Brig. Gen. Hugh Morgan has announced the mortality figure for this war of 0.6 per 1,000 troops, as compared to 15.6 in the last war. Although treatment of disease with new therapeutic agents has been important, most of the orchids go to Brig. Gen. Simmons and his staff for their magnificent achievements in the field of preventive medicine.

The booklet recently issued by the National Physicians Committee for the Extension of Medical Service contains much food for thought. A survey by Opinion Research Corporation, Inc., revealed that 63 per cent of people think that something might be done to make it easier for people to pay doctor or hospital bills. And, 39 per cent indicated a preference for prepaid medical care or hospitalization or insurance of some kind.

On the other side, 37 per cent chose a Federal plan as opposed to a plan sponsored by a group of doctors. Further, 33 per cent would vote for the government setting the fees doctors can charge for each type of service.

It looks as though the medical profession needs to cultivate the field of public relations if the traditions of medicine are to be preserved.

It is remarkable that a significant number of the physicians at every medical meeting are the most prominent, the most successful and the busiest in the community; out of proportion to their numbers. Could there possibly be a moral in this: A statistical correlation between interest in the newer things of medicine and the number of patients?

Has power politics entered into the field of nutrition? Someone who should have the facts to guess suggested to your reporter that the systematic starvation of the occupied countries of Europe by the master race is for the purpose of decreasing fertility. There is some evidence that serious nutritional deficiency during adolescence may permanently damage reproductive capacity. The day when the "lights come on again" may be delayed for a generation.

The Army seems always to have to learn the hard way—trial and error. Much thought and time was put into the creation of the Army Student Training Program. Men were carefully selected, curricula constructed and schools established. The plea was made that this is a war of technicians. Then, in less than a year most of the program is discarded. What has happened to the philosophy on which the scheme was based—sacrificed for expediency?

The dissemination of medical literature is due for a revolution. With microfilm copying of articles, journals and books, the literature of the world is available to the physician in the smallest town as well as to the person in the larger centers. Congratulations and thanks to Col. Jones and the Army Medical Library for what they are doing for the Medical Corps of the Army and Navy now and for all of medicine in the future.

NEWS NOTES

Dr. R. H. Williams, Moberly, gave a talk and answered questions on spinal meningitis before the South Park P. T. A. in Moberly early in March.

Dr. F. J. Tainter, St. Louis, will serve as college physician at Lindenwood College, St. Charles, for the remainder of the school term, taking the place of Dr. E. J. Canty, who is entering military service.

Dr. E. G. McGavran, Clayton, spoke before the Clayton League of Women Voters at the St. Louis County Health Building, Clayton, on March 10. He discussed the health program for St. Louis County.

Dr. Herbert J. Rinkel, Kansas City, gave an original showing of three hundred kodachrome slides on "Etiology of Hay Fever" at the Southwest Allergy Forum, Jackson, Mississippi, April 15 and 16. He also led a symposium on "Food Allergy."

DEATHS



DR. J. F. ROBERTS

J. F. Roberts, M.D., Bolivar, Missouri's oldest practicing physician, died February 10. He was 93 years old and had practiced for seventy-two years. He was active until two or three weeks before his death. He was graduated from the Missouri Medical College, St. Louis, in 1872. He acted as president of the Dallas-Hickory-Polk County Medical Society three times and was secretary several years. He attended the monthly meetings regularly until his death and was always interested in the programs. He was a cultured gentleman. He read extensively, not only medical literature, but was widely read in many subjects and was a poet of no mean ability. Few served his fellow men longer or better.

COUNCILOR DISTRICT AND SOCIETY PROCEEDINGS

ASSOCIATE EDITORS: COUNCILORS OF THE TEN COUNCILOR DISTRICTS

FIRST COUNCILOR DISTRICT

A. S. BRISTOW, PRINCETON, COUNCILOR
Nodaway-Atchison-Gentry-Worth Counties
Medical Society

The Nodaway-Atchison-Gentry-Worth Counties Medical Society held a dinner meeting at the Linville Hotel, Maryville, February 7, at which the president, Dr. Claude D. Haskell, Tarkio, presided. Members attending were Drs. Charles T. Bell, J. M. Broyles, Hiram Day, W. R. Jackson, Robert C. Person and William M. Wallis, Jr., Maryville; Eugene L. Crowson, Pickering; Charles D. Humberd, Barnard; Charles W. Kirk, Hopkins; Henry C. Bauman, Fairfax; Claude D. Haskell, Tarkio; Carlos E. Cossins, St. Joseph; and Drs. Earl Braniger, E. A. Miller, Jesse Miller and D. J. Thomas, Maryville, dentists. Guests present were Drs. Charles H. Flynn, Clarinda, Iowa; Hewitt Judd, Omaha, and Fred L. Reuter of the U. S. Navy Training Unit at the Teachers' College, Maryville.

Dr. Judd gave an excellent paper on "The Ophthalmic Aspects of Hypertension." He gave particular attention to ophthalmoscopic diagnosis and prognosis, and illustrated his talk with a series of colored lantern slides of both the common and the unusual atherosclerotic intra-ocular changes which can be seen, and the progressive stages of structural alterations which are induced in the fundus by vascular pathology.

Dr. Reuter spoke informally of his recent personal experiences as a Naval Medical Officer in the South Pacific area and on the more common tropical diseases seen there in members of the armed forces and in natives of the region.

CHARLES D. HUMBERD, M.D., Secretary.

FIFTH COUNCILOR DISTRICT

W. A. BLOOM, FAYETTE, COUNCILOR Cooper County Medical Society

The Cooper County Medical Society met January 28 at St. Joseph's Hospital, Boonville, with the following members present: Drs. J. O. Boley, Pilot Grove; G. L. Chamberlain, New Franklin; R. L. Evans, G. W. Winn, T. C. Beckett, W. H. Ziegler and J. C. Tincher, Boonville.

The following officers were elected: President, Dr. G. W. Winn, Boonville; vice president, Dr. J. O. Boley, Pilot Grove; secretary, Dr. J. C. Tincher, Boonville; delegate, Dr. G. L. Chamberlain, New Franklin; alternate, Dr. W. H. Ziegler, Boonville.

J. C. TINCHER, M.D., Secretary.

SIXTH COUNCILOR DISTRICT

R. W. KENNEDY, MARSHALL, COUNCILOR Vernon-Cedar County Medical Society

The Vernon-Cedar County Medical Society met at the

Nevada Hospital, Nevada, February 25.

The following officers were elected: President, Dr. Ralf Hanks, Nevada; president-elect, Dr. C. Braxton Davis, Nevada; secretary-treasurer, Dr. William H. Allen, Nevada; delegate from Vernon County, Dr. C. Braxton Davis, Nevada, alternate, Dr. William Cremer, Nevada; delegate from Cedar County, Dr. John W.

Dawson, El Dorado Springs, alternate, Dr. J. R. Williams. El Dorado Springs.

RALF HANKS, M.D., Secretary.

NINTH COUNCILOR DISTRICT

E. C. BOHRER, WEST PLAINS, COUNCILOR

Howell-Oregon-Texas and Wright-Douglas Counties

Medical Societies

The Howell-Oregon-Texas and the Wright-Douglas Counties Medical Societies held a joint meeting at the Elliott Hotel, Mountain Grove, March 30.

Those present were Drs. R. A. Ryan, R. W. Denney, H. G. Frame, A. C. Ames, Mountain Grove; L. T. Van Noy, Norwood; L. M. Edens, Cabool; L. M. Dillman, Houston; C. F. Callihan, Willow Springs; E. C. Bohrer, West Plains; Rev. J. S. Decker; Mrs. Elva Decker, Wright County nurse, Mountain Grove; Dr. Percy S. Pelouze, Philadelphia; Dr. R. R. Wolcott, Jefferson City.

Following dinner Dr. Pelouze gave an address on "The Control of Gonorrhea."

L. M. DILLMAN, M.D., Secretary, A. C. AMES, M.D., Secretary.

TENTH COUNCILOR DISTRICT

PAUL BALDWIN, KENNETT, COUNCILOR

St. Francois-Iron-Madison-Washington-Reynolds County Medical Society

The St. Francois-Iron-Madison-Washington-Reynolds County Medical Society met at the Bonne Terre Hospital, Bonne Terre, February 24 at 8:00 p. m., with the following members present: Drs. David E. Smith, A. L. Evans, Ferdinand Welebir, Bonne Terre; Arnold Traubitz, W. E. Aubuchon, John W. Hunt, Jr., Leadwood; Reuben Appleberry, Farmington; Dailey Appleberry, Rivermines; Harry Barron, Fredericktown; H. H. Cline, Flat River. Visitors were Drs. Harry Poston, Bonne Terre, and H. C. Shephard, Flat River.

Terre, and H. C. Shephard, Flat River.
Dr. Norman Tobias, St. Louis, gave a discussion on "Some of the Common Skin Disorders." His talk was

illustrated with lantern slides.

The president, Dr. Reuben Appleberry, Farmington, appointed the following delegates and alternates to the Annual Session: St. Francois County, delegate, Dr. Ferdinand Welebir, Bonne Terre, alternate, Dr. David E. Smith, Bonne Terre; Iron County, delegate, Dr. Ben M. Bull, Ironton, alternate, Dr. R. E. Harland, Ironton; Washington County, delegate, Dr. J. P. Yeargain, Irondale, alternate, Dr. J. L. Thurman, Potosi; Madison County, delegate, Dr. Harry Barron, Fredericktown, alternate, Dr. S. C. Slaughter, Fredericktown; Reynolds County, delegate, Dr. A. F. Bugg, Ellington.

JOHN W. HUNT, JR., M.D., Secretary.

Scott County Medical Society

The Scott County Medical Society met in the Court House at Benton, February 17. The meeting was called to order by the president, Dr. George W. H. Presnell, Sikeston. Those present were Drs. H. S. Miller, H. A. Dunaway, George W. H. Presnell, Sikeston; A. E. Lee, George T. Dorris, Illmo; J. A. Cline, Oran; W. O. Finney, Chaffee; A. T. Ferguson, Benton. Visitors were Drs. M. L. Gentry, Jefferson City, and W. B. Finney, Kennett.

Dr. W. O. Finney, Chaffee, was elected delegate and Dr. E. J. Nienstedt, Sikeston, alternate.

Dr. Gentry, Director of Child Hygiene, State Board of Health, discussed the child welfare program and the provision for care of the families of men in service.

A vote of thanks was extended to Dr. Gentry.
Dr. H. A. Dunaway, Sikeston, discussed methods of controlling nasal hemorrhage.

A resolution was adopted condemning counter prescribing for venereal diseases. On motion it was ordered that a copy of the resolution be sent the druggists and that it be printed in the newspapers in Scott County.

W. O. FINNEY, M. D., Secretary.

BOOK REVIEWS

Sociology and Social Problems, An Introduction To. A textbook for Nurses by Deborah MacLurg Jensen, R.N., B.Sc., M.A. Instructor in Sociology and Social Problems at Schools of Nursing of St. Louis City Hospital and St. Luke's Hospital; Lecturer in Nursing Education, Washington University; Formerly Social Service Consultant to the Visiting Nurse Association, St. Louis. Illustrated. Second Edition. St. Louis: C. V. Mosby Company. 1943. Price \$3.25.

This book embraces the field of sociology and social work. It presents the elementary principles of sociology and gives a comprehensive picture of the field of social work. It contains a great deal of information which should make it valuable as a reference.

The failure to differentiate clearly between the functions of the sociologist, the nurse and the social worker

leaves the reader confused.

The author has made a particular contribution in pointing out the need of a knowledge of the significance of the social factors in illness, by the nurse. H. M. E.

Synopsis of Tropical Medicine. By Sir Philip Manson-Bahr, C.M.G., D.S.O., M.D., F.R.C.P. Senior Physician to the Hospital for Tropical Diseases, Royal Albert Dock and Tilbury Hospitals; Consulting Physician in Tropical Diseases to the Dreadnought Seamen's Hospital, London; Director, Division of Clinical Tropical Medicine, London School of Hygiene and Tropical Medicine; Consulting Physician to the Colonial Office and Crown Agents for the Colonies; Consultant in Tropical Medicine to the Admiralty and to the Royal Air Force; Lumleian Lecturer, Royal College of Physicians, 1941. With 5 plates. Baltimore: The Williams & Wilkins Company. 1943. Price \$2.50.

The author has combined in a very condensed form in this small handbook a remarkable amount of material for those interested in tropical medicine. It is not designed for detailed reading but for obtaining quickly the essential facts in outline form on diseases of the tropics.

It is presented to the profession at a very opportune time. Those who are not conversant with the essentials for diagnosis and treatment, as well as those more familiar with tropical medicine, will welcome this little volume which is crammed full of observations from those who spend their lives in intensive study of diseases peculiar to the tropics.

W. A. M.

Human Constitution in Clinical Medicine. By George Draper, M.D. Associate Professor of Clinical Medicine, College of Physicians and Surgeons, Columbia University; Associate Attending Physician, Presbyterian Hospital, New York; and C. W. Dupertuis, Ph.D. Physical Anthropologist, Constitution Clinic, Presbyterian Hospital, New York City; and J. L. Caughey, Jr., M.D., Med. Sci.D. Associate in Medicine, College of Physicians and Surgeons, Columbia University; Assistant Physician, Presbyterian Hospital, New York City. New York: Paul B. Hoeber, Inc. 1944. Price \$4.00.

"Human Constitution in Clinical Medicine" was written to answer the question of relationship between individual human constitution and disease; to give an accurate and intimate knowledge of the man within the patient. The authors state that there is no short cut to knowledge and understanding of a given representative of mankind but feel that there are three well defined interrelated phases (1) the human subject, (2) the disease process and (3) the specific environmental stress.

In the chapter on "Perception and Response" it is pointed out that one must rely on observation, correlation and interpretation.

The object of the book is well carried out by discussion and case reports. An adequate bibliography gives the reader reference for further study.

S. S. B.

Handbook of Nutrition. A Symposium prepared under the Auspices of the Council on Foods and Nutrition of the American Medical Association. 1943. Chicago: American Medical Association. Price \$2.50.

The brilliant and inspiring introduction to the book by James S. McLester, M.D., points out that "the most fertile field in the world of medical research today is nutrition." While great advances have been made, many problems remain to be solved.

The reader should not be disturbed by the technical methods of the biochemist because in every one of the chapters by the twenty-eight contributors useful clinical knowledge can be gleaned. Tuohy's chapter on "Feeding the Aged" is particularly recommended to the clinician.

This book is not just written for the specialist on the subject of nutrition, but every practitioner of medicine should read it carefully. In brief, it is an essential book, one that should be included in every physician's library.

H. W. S.

Gastro-enterology. (In Three Volumes.) By Henry L. Bockus, M.D. Professor of Gastro-enterology, University of Pennsylvania Graduate School of Medicine. Volume 1. The Esophagus and Stomach. Examination of the Patient, and Diagnosis and Treatment of Disorders of the Esophagus and Stomach, Incuding Duodenal Ulcer. Fully Illustrated, including many in colors. Philadelphia: W. B. Saunders Co. 1943.

To those men specializing in gastroenterology this set of books is a "must." To those interested in the subject of gastroenterology, there will be found a wealth of information easily applicable to daily practice.

Dr. Bockus is a splendid teacher, writes beautifully and has brought much clinical wisdom to the writing of this enormous treatise. The journal, *Gastroenterology*, says: "There is a mass of information from which other men will quarry for the next fifty years." It is difficult to understand how any man busy with private practice and teaching can find the time to read, digest and use the tremendous number of articles listed in his excellent bibliographies.

The chapters on peptic ulcer and its complications are particularly valuable and instructive. The various methods of treatment and diet are discussed and clearly evaluated. Pleasantly noted is his frank endorsement of the principles of ulcer treatment as laid down by Sippy—"since it has been learned by long experience that the most rapid healing of an ulcer niche, observed by roentgen and gastroscopic study, occurs following the Sippy type of management, with hourly feedings of milk and the addition of antiacids and vagus depressant drugs."

The text is well written, it is instructive and interesting, and the book is beautifully illustrated and printed. For the enormous amount of time and effort required for its production, the medical profession is deeply indebted to Dr. Bockus for this magnificent work and to the Saunders Company for their collaboration in making its publication possible. D. A. W.



INDEX TO ADVERTISERS

	25 36
Bernheim Distilling Company Borden Company Brewing Industry Foundation	40 41 13 17 29
Camp, S. H. & Company Canada Dry Ginger Ale, Inc. Ciba Pharmaceutical Products, Inc. Ciba Pharmaceutical Products, Inc. Coca-Cola Company	11 27 23 23 27 37
Denver Chemical Manufacturing Company	32
Faith Hospital	30
Glenwood Sanatorium	30 33 24
Hanger, J. E., Inc. Holland-Rantos Company	30 28 12
Isle, W. E., Company	38
Lilly, Eli and Company	16 22 31
Major Clinic Association. Mead Johnson & Company Medical Protective Company Milwaukee Sanitarium Miscellaneous Announcements Mosby, C. V., Company	35 46 33 38 39 24
National Pathological Laboratory	42 37 30 34
Ortho Products, Inc.	44
Petrogalar Laboratories, Inc. Philip Morris & Company. Physicians Casualty Association Pogue, Mary E., School.	28
Petrogalar Laboratories, Inc. Philip Morris & Company. Physicians Casualty Association. Pogue, Mary E., School.	45 21 28
Petrogalar Laboratories, Inc. Philip Morris & Company. Physicians Casualty Association Pogue, Mary E., School Ralph Sanitarium Schmid, Julius, Inc. Searle, G. D. Company. Smith-Dorsey Company Spencer, Inc.	45 21 28 24
Petrogalar Laboratories, Inc. Philip Morris & Company. Physicians Casualty Association Pogue, Mary E., School Ralph Sanitarium Schmid, Julius, Inc. Searle, G. D. Company. Smith-Dorsey Company Spencer, Inc.	45 21 28 24 36 14 19 34 33
Petrogalar Laboratories, Inc. Philip Morris & Company. Physicians Casualty Association. Pogue, Mary E., School. Ralph Sanitarium Schmid, Julius, Inc. Searle, G. D. Company. Smith-Dorsey Company Spencer, Inc. Stokes Sanitarium Upjohn Company Wallace Sanitarium White Laboratories, Inc. Winthrop Chemical Company World Insurance Company	45 21 28 24 36 14 33 38
Petrogalar Laboratories, Inc. Philip Morris & Company. Physicians Casualty Association. Pogue, Mary E., School. Ralph Sanitarium Schmid, Julius, Inc. Searle, G. D. Company. Smith-Dorsey Company Spencer, Inc. Stokes Sanitarium Upjohn Company Wallace Sanitarium White Laboratories, Inc. Winthrop Chemical Company. World Insurance Company. Worrell, Dorothy Wyeth, John & Brother	45 21 28 24 36 14 19 34 33 38 38 38 38 38 38

BOOKS RECEIVED

Medical Care of the Discharged Hospital Patient. By Frode Jensen, M.D., Instructor in Medicine, Syracuse University College of Medicine, and H. G. Weiskotten, M.D., Dean and Professor of Pathology, Syracuse University College of Medicine, and Margaret A. Thomas, M.A. (Oxon). New York: The Commonwealth Fund. 1944. Price \$1.00.

CLINICAL LECTURES ON THE GALLBLADDER AND BILE DUCTS. By Samuel Weiss, M.D., F.A.C.P., Clinical Professor of Gastroenterology, N. Y. Polyclinic Medical School and Hospital; Gastroenterologist, Jewish Memorial Hospital, N. Y.; Consulting Gastroenterologist, Beth David Hospital, N. Y., Long Beach Hospital, Long Island, etc. Chicago: The Year Book Publishers. 1944. Price \$5.50.

PRINCIPLES AND PRACTICE OF MEDICINE. Originally Written by Sir William Osler, Bart., M.D., F.R.C.P., F.R.S. Designed for the Use of Practitioners and Students of Medicine. By Henry A. Christian, A.M., M.D., LL.D., (Hon.) Sc.D., Hon. F.R.C.P. (Can.), F.A.C.P. Hersey Professor of the Theory and Practice of Physic, Emeritus, Harvard University; Clinical Professor of Medicine, Tufts College Medical School; Physician in Chief, Emeritus, Peter Bent Brigham Hospital; Visiting Physician, Beth Israel Hospital, Boston. Fifteenth Edition. New York: D. Appleton-Century Company. 1944. Price \$9.50.

Manual of the Diseases of the Eye. For Students and General Practitioners. By Charles H. May, M.D., Consulting Ophthalmologist to Bellevue, Mt. Sinai and French Hospitals, New York; Formerly Chief of Clinic and Instructor in Ophthalmology, Medical Department of Columbia University, and Director of the Eye Service at Bellevue Hospital, New York. Eighteenth Edition, Revised, with the Assistance of Charles A. Perera, M.D., Associate in Ophthalmology, College of Physicians and Surgeons, Medical Department of Columbia University, New York; Asst. Attending Ophthalmologist, Presbyterian Hospital, New York. With 387 illustrations, including 32 plates, with 93 colored figures. Baltimore: William Wood and Company. 1943. Price \$4.00.

CLINICS. Edited by George Morris Piersol, M.D., Professor of Medicine, Graduate School of Medicine, and Professor of Clinical Medicine, School of Medicine, University of Pennsylvania, Philadelphia, Pa. With the collaboration of Francis Gilman Blake, M.D., Yale University, New Haven; Russell L. Cecil, M.D., Cornell University, New York; Vernon C. David, M.D., Rush Medical College, Chicago; Nicholson Joseph Eastman, M.D., Johns Hopkins University, Baltimore; Karl Musser Houser, M.D., University of Pennsylvania Hospital, Philadelphia, Pa.; William John Kerr, M.D., University of California, San Francisco; John W. McNee, D.S.O., M.D., University College Hospital, London; Jonathan C. Meakins, M.D., McGill University, Montreal; John Walker Moore, M.D., University of Louisville, Louisville; John Herr Musser, M.D., Tulane University, New Orleans; Lewis J. Pollock, M.D., Northwestern University, Chicago; Isidor S. Ravdin, M.D., University of Pennsylvania, Philadelphia; Borden Smith Veeder, M.D., Washington University, St. Louis; George Barclay Wallace, M.D., New York University, New York; Alan C. Wood, M.D., Johns Hopkins University, Baltimore; George Richards Minot, M.D., Harvard University, Boston. Philadelphia; J. B. Lippincott Company. 1944.

THE JOURNAL

OF THE

Missouri State Medical Association

The Official Organ of the State Association and Affiliated County Societies
Issued Monthly under direction of the Publication Committee

COPYRIGHTED, 1944, BY MISSOURI STATE MEDICAL ASSOCIATION. ALL RIGHTS RESERVED.

VOLUME 41

JUNE. 1944

NUMBER 6

RALPH L. THOMPSON, M.D., Editor RAYMOND McINTYRE, Managing Editor HELEN PENN, Assistant Editor 623 Missouri Bldg., St. Louis, Mo. Telephone, Newstead 0404-05 PUBLICATION | RALPH L. THOMPSON, M.D., Chairman | M. H. SHELBY, M.D. | R. C. HAYNES, M.D. | VINCENT T. WILLIAMS, M.D.

ADDRESS OF THE PRESIDENT

A. W. McALESTER, JR., M.D.

KANSAS CITY

There are a great many things I might say but those of seeming importance were made to the House of Delegates and deal with matters temporal and seem somewhat unfitted to my part in the program tonight—the occasion, the dinner in honor of the Past Presidents of the Missouri State Medical Association. Our gracious guests, the Rev. Father Schwitalla and Mr. Pratt, are to speak of things which are of paramount importance at this time, not only to us as a profession but to the schools and people of the nation.

I am asking, however, that each of you give united support to our committees, especially the Committee on Postwar Planning, and aid them in their efforts and the efforts of other committees and the Council to make available the training and placing of qualified physicians in every part of the state with adequate county or joint county hospitals located at strategic points as to population and accessibility, under local community control, of class A rating with adequate laboratories and the personnel to make them Class A, these institutions to be of the same high standing as the great hospitals of St. Louis and Kansas City, and staffed by the same class of men. These things are accomplished easily and already have been accomplished in a few counties in our state. Our present state laws make this practical.

Here in Kansas City in the month of May, fifty-five years ago, my Father stood where I now stand, elevated to the highest honor that is in the power of the medical profession of Missouri to grant. Many of you, whose hair is tinged with gray, remember his kindly smile, his warm grasp of your hand and his loyalty to each of you, as well as his never faltering faith in the destiny of his chosen profession and its service to mankind.

It is now my pleasure to quote in part a eulogy by Thomas V. Bodine to my Father on the occasion of his eightieth birthday, and I know of no more fitting words I might say to you, our Past Presidents, who have rendered the life long service you have:

"To have lived fully and unafraid, to have loved much—men and women and little children and whatsoever things were good and sensible; to have hated with just hatred that which was wrong and foolish; to have served for the love of serving and to one's utmost; to have had friends and to have cherished them, to have had enemies and forgiven them, to have esteemed your kind, to have despised human pretensions and yet to have valued human worth—and then to sit down in the afterglow of the years among memories that are blessed—what could be more beautiful? God has his elect, and they are the inheriters of his Life—the Life More Abundant."

If he were speaking to the younger members



ANDREW WALKER McALESTER

Presented at the 87th Annual Session of the Missouri State Medical Association, Kansas City, April 23, 24, 25, 1944.

here, it might be as follows: "Honor thy Father and thy Mother. Likewise, give praise to the Fathers of Medicine, whose rich heritage of scientific and clinical truths has been handed down to thee through centuries of patient toil. Hold fast to that which is good, but let not prejudices coming out of the past blind thee to the newer truths of medical advancement."

In honor of this occasion, I and my Son, Lt. Comdr. Andrew W. McAlester, III, are presenting to Dean Conley a portrait to be placed in McAlester Hall, the medical building named for Andrew Walker McAlester, A.M., M.D., LL.D., F.A.C.S., the "Father of the School of Medicine of the University of Missouri."

2003 Bryant Building.

ADDRESS OF THE PRESIDENT-ELECT

LT. COL. CURTIS H. LOHR, M.C.

ST. LOUIS

It is a trite but nevertheless true saying that time flies fast. Thus, it seems to be just a few months since we were last assembled together in St. Louis but, in actuality, almost a year has elapsed. Another Annual Session of the Association is under way and for the first time in many years my associates and fellow members and myself will have to be content to be with you in spirit only.

As far as our activities over here are concerned I must of course limit my remarks in accordance with army regulations and the rules of censorship. Suffice it to say that we are more or less permanently established and that our facilities are remarkably good considering the distance from home and the tremendous scope of this war. Our equipment is the best that money can buy and while we do not have the marble walls and high speed elevators of some of the hospitals at home, we have everything which is essential to give excellent medical and surgical care to our patients who deserve so much. All of us are in good health and although our mode of life is a bit rugged in comparison to home standards, we have been spared, so far, the difficult conditions experienced by our combat troops. We are rather fortuntely situated in our present assignment but although we are many miles from the front our daily business reminds us constantly of the bitter struggle in which the allied forces are engaged. We have been very busy and for that we are grateful as it makes us feel that we are making a worthwhile contribution to the war effort. Besides, it helps us to pass the time and to keep our minds from wandering too much and too often back to the hills and dales of ole Missouri and our families and friends.

While thousands of miles separate us from you today, we know that we have not been forgotten by our colleagues at home. We know this by the many letters which we received collectively from

you. Also, we are assured of this by The Journal which comes to us regularly and which is welcomed as an old friend and read eagerly from cover to cover.

Thanks to these channels of information we have remained fairly well informed of medical activities at home in general and of the work of the State Association in particular. Your fine accomplishments in 1943 in stemming the efforts of the cultists to legalize their present illegal practice of medicine has been most gratifying to us. Your success has thrilled us not only because the cults have been curbed and the public health safeguarded for another biennium but, above all, because the results obtained give conclusive proof that the Association is more alert, better organized and more active than ever before. We are indeed happy to see that the shackles of indifference, of "laissez faire" and the tendency to appeasement which have paralyzed our activities for so long have been finally thrown off. This new esprit de corps and this decision and this ability to fight unitedly for what is right and proper are indeed outstanding accomplishments. They are especially significant in that the change came at a time when your ranks were depleted and when your time and strength were sorely taxed by the demands of your wartime practices. We congratulate you on your success. We are proud of the fact that before we entered the service some of us were helpful in a small way to bring about these changes for the better.

As we look at the future it presents even greater problems than the past. Time and space does not permit a detailed discussion of all the problems which confront the profession and which are of interest to us even though we are overseas. However, we are especially concerned with the pending Federal legislation for a national health service and the obvious necessity in this connection for enlightened leadership and immediate, continuous, aggressive and collective action on the part of the profession. In any discussion of this measure the profession will find itself unfortunately in an embarrassing position as anything less than complete acceptance will be misinterpreted by the politicians, by the economic messiahs and especially by selfish individuals and groups within the medical profession as evidence of the "Toryism" of the "money hungry medical trust." The members of the profession know of course that this is not true but the general public unfortunately is not acquainted with the actual facts.

Therefore, the public must be told, not once but repeatedly and by all possible means, that the medical profession has always taken care of the indigent sick free of charge and that as physicians and citizens, we should not be deprived of the right to be charitable and should not be compelled to give up this direct and practicable benevolence for the monetary pittance which a national health service would provide. The public must be told that in areas in which the medical care of the low income and the indigent groups are inadequate, the fault

Presented at the 87th Annual Session of the Missouri State Medical Association, Kansas City, April 23, 24, 25, 1944.

does not lie with the medical profession but rests with the more fortunate citizens and the public officials of such areas who, for reasons best known to themselves, have not provided the facilities which are necessary to give adequate medical care to those unable to pay in addition to the free services of the medical profession. The public must certainly be told that the three reasons usually emphasized by advocates of a national health service: (1) lowering of the cost of medical care; (2) adequate medical care for all, and (3) improvement of the national health—that all of these three objectives have never been realized in the countries in which such plans have had a prolonged and fair trial. It must be stressed and reiterated time and again that in those countries quite the contrary has happened, that the cost of medical care for the nation has actually and markedly increased, that the type and quality of the care rendered is not even in keeping with the minimum standards found here and there in our country and that under national health service the morbidity and mortality rates in these foreign countries has actually become worse instead of better.

The public must be impressed with the fact that while the profession is opposed to risk the health and the economy of this nation at one fell swoop in a sociologic-economic experiment of such stupendous proportions that it even bewilders those who by virtue of training and experience are best qualified to judge the feasibility of such a plan, it is willing to continue the small scale local experiments which have been under way in different sections of the country for the last ten years. It must be stressed to the public in this connection that such plans are not new and that many of them have been initiated by the profession in an effort to gather competent facts upon which any type of large scope health service or group care must obviously be based if it is to succeed. The work and accomplishments of our own Committee on Medical Economics affords a good example of the sincere effort that has been made by the profession on a voluntary basis long before the politicians became interested in the health of the poor and the low income group.

Even this brief discussion of the problem of a national health service indicates the complexities and the tremendous scope of this subject. We, who are away from home, are mindful that this staggering burden of study, planning and action confronts you at a time when you are already hard pressed by the heavy demands of your wartime practices. We wish we could be of help but as this is obviously impossible we must be content to assure you of our appreciation of your efforts and of our moral support of come what may.

We have also discussed among ourselves over here the fine chance and the need for further constructive effort and public service by the profession in relation to our public institutions. We feel that as long as the operation of such hospitals and services depend to a large extent on the free services of our members, we should assert ourselves and insist on efficient management. It is certainly an insult to us as physicians and as citizens and it reflects unfavorably on us to stand idly by and to see some of our public institutions assume the role of political weather vanes and to see wholesale discharges of professional career personnel, not on account of lack of qualification but based solely on the direction of the prevailing political winds and atmosphere. We feel strongly that political partisanship has no place in the care of the sick. We advocate the adoption of a resolution by the State Association and by its component societies which will notify the political buccaneers which exist in both major parties that the profession of the State of Missouri is determined to put an end to the political exploitation of the sick poor, of the health of the people and of those of our members who are engaged in work of this kind as a means to earn a livelihood. Considerable progress has been made in this direction in recent years by small groups of public spirited citizens, physicians and public officials who have put public service above personal gain and advantage. Such men deserve our support regardless of party affiliation. The others, especially the politically controlled doctors, deserve nothing but scorn and our active and combined opposition. The adoption and enforcement of such a policy will be for the public good. It will go a long way to restore the profession in the public's esteem and confidence.

In relation to the war effort your members over here have been gratified to see the outstanding record made by the Association in the procurement of physicians for the armed services. Your State Committee and its subcommittees have served the nation well. Difficult decisions were made on the basis of need and personal friendship and interests have been disregarded. It is indeed significant that this statewide program has been accomplished without a word of criticism. We are vitally interested in this program for obvious reasons and we deeply appreciate the unselfish work of these men and the fine response and support which has been given to them by the Missouri profession.

In conclusion, I must of course refer to my inability to assume the high office, in the election to which you bestowed upon me last year the greatest honor which the Missouri profession may confer. While I regret in a way that I shall not be able to fulfill my duties as your President during the coming year, I am proud of the fact that I am doing my bit over here. I am sure that whoever you will select to fill my place will serve you well and probably better than I could have done. Your officers will have a real task and sometimes we feel that our lot is easier over here than that of those at home "who also serve."

All of us here wish you the best of luck and the necessary strength and health to carry on your work in these difficult times. Please extend our greetings from North Africa also to those of our friends who could not attend the session. We sin-

cerely hope that you will have a successful meeting and we are sure that in spite of wartime restrictions and handicaps, your remarkable hosts in Kansas City will attend to that as in the past.

Until we meet again.

CONTROL FACTORS IN THE SURGERY OF CANCER PATIENTS

EVERETT D. SUGARBAKER, M.D.

COLUMBIA, MO.

Patients with cancer requiring major surgical treatment demand more painstaking management than almost any other clinical group, if good results are to be anticipated. Two factors are primarily responsible for this: the age of the patient and the disposition of the disease. The suspicion that there may be something fundamentally wrong with the metabolism of the cancer patient also has been voiced recently.

Although it is well to bear in mind that exceptions are numerous, cancer in general is a disease of senescence so that, coincident with the tumor, there are likely to be present any or several of the so-called degenerative diseases that develop with advancing age. Lowered cardiorespiratory and renal reserves, peripheral vascular disease, obesity, diabetes and avitaminoses comprise those most commonly encountered.

The inclination of malignant tumors is to ulcerate, become infected and bleed, with ensuing general debility, sepsis and anemia. In addition, local organic function may be interfered with. Factors such as these and the possibility of their interrelationship constitute a problem which is more or less casually referred to as the "operative risk." The following is concerned more particularly with those commonly occurring instances in which the margin of safety between what the patient is able to withstand and what must be done surgically is extremely narrow.

From the standpoint of the time element in treatment, cancer justifiably may be considered a sub-acute emergency. The primary disease is, with variable rapidity, progressive and there is no means of determining when metastases beyond the limits of surgical accessibility may occur.

Prompt, careful and patient study is the first essential. The implied element of completeness cannot be overemphasized for accurate clinical evaluation almost invariably will become the deciding factor in determining what or how radical a procedure subsequently may be carried out with maximum safety and expectation of cure. As this evaluation progresses and evident dysfunctions are corrected insofar as is practicable, the patient gradually becomes a relatively known quantity. When that point has been approached, considerable importance attaches to maintaining the status quo and the effort directed toward that end is what is

implied by the term "control." Its development involves continuous alteration in organization and in individual technics, deleting or altering at one point and incorporating at another factors which provide wider margins of safety. Its maintenance involves careful and time-consuming preparation. It aims at the elimination or anticipation and handling of unforseen eventualities.

No argument against biopsy exists any longer. Yet most of the errors in treatment referred to a tumor clinic result from failure to follow the simple expedient of obtaining a small fragment of tissue for microscopic examination. A large part of the remaining mistakes stem from a failure to recognize or utilize the implications of the available pathologic findings. That surgery is primarily an application of judgment is a generally accepted truism. Such application is not possible in the case of tumors without adequate understanding of their life history. Too great responsibility too frequently is placed on the pathologist, supposing one is immediately available. At a critical time when highly important gross factors must for the first time be considered in the operating room, he is unfortunately in no position to do more than submit a frozen section diagnosis. He cannot be made the substitute for a personal acquaintance with the surgical pathology of tumors. Besides this, a practical understanding of the limitations and possibilities of roentgen ray and radium therapy, the surgical branches of radiology, are also the responsibility of the surgeon, in order that he may exercise proper discrimination. Failure to meet this responsibility accounts for most of the remaining instances of case mismanagement.

Tumors within body cavities, particularly the abdomen, usually leave unanswered until operation the question of their operability. The surgeon accordingly must base his plans on the supposition that resectability will be possible and he must be prepared to carry out the most radical procedure demanded by the circumstances. Choice of anesthesia is therefore of great importance.

There is no anesthesia which provides the profound relaxation of spinal anesthesia. In the event of troublesome bleeding, inadvertent soiling, or in the accomplishment of difficult technical exercises, such relaxation affords a measure of control which is frequently life-saving. As used in the past, spinal anesthesia has been criticized justly for its unreliable duration, with no provision available either for prolonging or shortening its period of action should the operative situation so require. The usual result was a feeling of anxiety on the part of the operator with a tendency to hurry when the necessity for haste was most to be deprecated. Unforeseen complications caused by the upsetting of the predetermined anesthetic time schedule were apt to induce frustration. In consequence, situations requiring the most careful thought and attention to detail were least apt to get them.

The uncertainty of operability further required

From the Surgical Department of the Ellis Fischel State Cancer Hospital.

that large doses of the longer lasting spinal anesthetic agents be given. In the subsequent event that the tumor proved to be inoperable, the patient would shortly be returned to his bed where he remained anesthetized for several additional hours.

Introduction by Lemmon¹ of the continuous principle into spinal anesthesia has made it possible to retain all the valuable features of this method but has eliminated its major shortcomings. Continuous spinal anesthesia is particularly adaptable to cancer patients because of the previously mentioned uncertainty as to operability. A small initial dose (from 100 to 150 mg.) of one of the least toxic of the spinal anesthetics (procaine) enables one to determine the operability of the case, at which point anesthesia either may be terminated or continued as long as is necessary. In one patient at the State Cancer Hospital, high abdominal anesthesia was maintained uninterruptedly for six hours during a technically rather difficult total gastrectomy. Should a patient evidence any signs of shock, it has become the custom at this hospital to suspend all operative activity until the vital signs have returned within the normal range. It is felt that the ability to do this because of controlled anesthesia has frequently been life-saving, for elderly patients tolerate shock poorly even though it is of short duration.

All but the very occasional and very slight spinal fall in blood pressure has been circumvented by administering ephedrine solely by the intravenous route in smaller doses at more frequent intervals. An average of 25 mgs. intravenous ephedrine per 50 mgs. of spinal novocain per one-half hour has been given with satisfactory results. This has been done to exclude the uncertainties of absorption by the interstitial route. Should the blood pressure fall later as a result of surgical manipulation with ensuing peripheral vascular stasis, the utilization of the intravenously given ephedrine is assured. Thereby, spinal hypotension is prevented from confusing the picture.

Subcutaneous or even intermuscular absorption, dependent as it is on the peripheral circulation, becomes very unreliable in aged or obese patients on whom a locally vasospastic drug is being used. Should some degree of surgical shock supervene, practically no immediately useful peripheral absorption takes place as evidenced by the marked and potentially dangerous postoperative rises in pressure resulting subsequently from the late release of interstitially trapped ephedrine. These episodes are now also avoided by intravenously given ephedrine.

The restlessness resulting from prolonged immobilization of unanesthetized parts, increased warmth and fear may be completely eliminated by the use of the usual preoperative medication plus small intravenous doses of pentothal given slowly to induce sleep. No pentothal should be given,

however, until the desired level of spinal anesthesia has been obtained.

A recent comparison of the results² of and complications following inhalation ether and continuous procaine spinal anesthesia at this hospital appears to demonstrate fully the superiority of the latter.

On all patients arriving at the operating room for major surgery, an intravenous infusion of normal saline is begun through a securely placed needle. If spinal anesthesia is to be used, the spinal needle is first placed and the patient is returned to the supine position, but no procaine is injected until the intravenous solution is running satisfactorily. The ephedrine (25 mgs.) is then injected into the tubing and several minutes later the spinal anesthetic is given. No large dose of spinal anesthesia will be injected until this control mechanism has first been set up.

The medial malleolar vein usually is chosen as the site for the infusion since manipulations in this region are not apt to interfere with the function of the operating team. Saline is used routinely as it presents no incompatibility with any of the ordinarily used medications and because it offers specific replacement for insensible fluid loss occurring while on the table.³ It may be discontinued and replaced by blood or plasma as soon as individual circumstances indicate. With such a mechanism available, much more blood (or plasma) is apt to be given prophylactically than therapeutically for shock as the attempt is made to maintain replacement somewhat in advance of loss.

In the event of hemorrhage, a pumping mechanism is used so that the increased loss may be met without delay. Occasionally, the blood pressure may drop quite suddenly as, for example, during retroperitoneal dissection. At such times, it has been found prudent to discontinue manipulation temporarily. Meanwhile, the flow of plasma or blood is increased.

Little need be said regarding the advantages of a blood and plasma bank. These now are appreciated quite generally and consist of having these substances easily available. It is my impression that elderly patients should have hemoglobin values restored to from 80 to 85 per cent before operation is attempted and that this is much safer than the often quoted figure of 70 per cent. Efforts during operation are directed at specific replacement. It is well to remind one's self that estimates on the amount of blood lost are apt to be too low by as much as several hundred cubic centimeters. This has been demonstrated to the satisfaction of this hospital staff by carefully rinsing out the drapes and sponges in saline and then doing red cell counts and hemoglobin determinations on the rinsings. A hematocrit on the day following operation may serve as a check on estimates of loss.

An indwelling bladder catheter is placed in all cases of major abdominal operations immediately prior to operation. This serves several useful purposes. In elderly patients with impaired renal concentrative powers, urinary secretion may be considerable over an operative period of from three to six hours (300 to 800 cc. by measurement in the operating room) if the blood pressure is maintained at a normal level. A corresponding amount of bladder distention may hinder exposure to some degree even in the upper abdomen. Postoperatively, the catheter is left in place for at least forty-eight hours, thereby eliminating the ever present possibility, especially in elderly males, of bladder distention from varying degrees of lower urinary tract obstruction. This simple mechanism also permits measurement of actual renal output. Urinary infections on this regime have been few in number and so mild as to appear negligible when compared with the benefits derived. Severe diabetes presents a definite contraindication to the prolonged use of indwelling catheters because of the danger of producing a necrotizing cystitis, as occurred in one patient at this hospital.

Finally, although it may appear trite, such a discussion would be incomplete unless also were mentioned the importance of well-planned, adequate incisions and painstaking care in the handling of tissues. The former not only implies easy exposure but also that the incision be suitable to whatever procedure the exploratory findings indicate. Regardless of diagnostic care, surprises will not be infrequent and the possibility of their occurrence must be accepted. Insofar as gentleness is concerned, there is probably no other group of surgical patients in whom it yields such readily visible results. Shock is less frequent. Postoperative prostration is minimized and temperature reactions are generally of low grade. Quick return of the will to live is much more apparent also.

In large wounds not involving body cavities, copious lavage with normal saline will get rid of small clots and bits of tissue debris and it has been our experience that the tendency toward collections of serum has been appreciably decreased by this practice.

There seems to be no point in discussing the relative advantages and indications for absorbable and nonabsorbable suture material. However, patients with gastrointestinal cancer do present a peculiar problem. As a result of many factors still understood only in part, their wounds have a well-known lowered resistance to infection and tend to heal poorly. In addition, the transsection of contaminated viscera often is involved and in large bowel cases an exteriorized stoma may soon bathe the entire wound region with organisms. Indeed, it is felt that in abdominoperineal rectal resection, the widely employed catgut or silk layer closure reinforced by stay sutures has long constituted a major weak spot in that procedure. The use of alloy steel wire (No. 28-30) in a manner similar to that described by Jones4 has eliminated all serious infections in clean or potentially contaminated wounds at this hospital in the last two years. Where gross spillage

has occurred, it has become the wound closure material of choice. Occasionally, the necessity of reopening superficial layers (skin and subcutaneous fat) to secure more adequate drainage in such cases has arisen and it has been a source of considerable gratification later to observe granulations growing right up around the wires and finally covering them completely. In sixty consecutive explored cases of abdominal carcinomatosis (the worst offenders from the standpoint of dehiscence) closed with steel, not a single instance of wound separation has occurred. Two partial separations involving all layers occurred following Miles' resections. Both occurred within thirty hours after operation, one as a result of violent retching during the passage of a Levine tube, the other following violent straining in an 86 year old patient who became disoriented. Both of these would probably have occurred as readily with any other suture material since it was observed at reclosure that the wires had been torn out. I feel this should caution against the use of too fine wire.

Control in the postoperative period is as important as it is in the preoperative and operative periods. Indeed, it is frequently more so for, at this point, one too often has a tired patient who after withstanding the assaults of his cancer plus a major surgical procedure has probably fairly well spent his physiologic reserves. The imposition of some additional demand, however small, too frequently will initiate a chain of events resulting in a fatality. This is particularly apparent following extensive colon and rectal resections in which such a patient either does well shortly or not at all. Prophylaxis consequently ranks first in importance and prompt treatment a poor second in the management of this period.

Pulmonary atelectasis is one of the commonest postoperative complications encountered in elderly patients despite the routine precautionary measures such as CO₂ inhalations, frequent changes in position or the maintenance of low Fowler's position. This last is, I believe, to be of considerable importance. Aged patients quite uniformly have a moderate to marked degree of pulmonary emphysema with a proportionate limitation of thoracic respiratory movement. Causing them to lie flat on their backs in the immediate postoperative period, as is commonly done following spinal anesthesia, may produce sufficient abdominal splinting to interfere with the clearing of bronchial mucus. It has become the practice at this hospital to place all patients in low Fowler's position as soon as their blood pressure has become stable. The incidence of clinically apparent atelectasis as well as postspinal headache has been approximately 1 per cent on such a regime. Abdominal binders have been discarded since they also hamper abdominal breathing.

When mucus has collected and the patient's efforts are ineffective in raising it, tracheal suction with a catheter is very helpful. Its greatest usefulness is prior to the formation of a bronchial plug.

When this occurs, bronchoscopy under topical anesthesia should be done without delay. One occasionally hears the paradox that the bronchoscope would have been passed had the patient been in better condition. The poorer the patient, the more urgent the bronchoscopy in the face of a large atelectasis.

Bronchoscopy is a simple and frequently lifesaving procedure when limited to the removal of mucus and bronchial plugs. It is the opinion at this hospital that it should be a part of the training of every surgical resident, and as a result it not only would be done more often but the valuable time usually lost in awaiting the bronchoscopist would be saved.

Hypomotility of the small bowel is seen quite commonly following operation in patients with gastrointestinal tumors. Fortunately, the more refractile ileus with marked distention occurs less frequently. This complication is dangerous because it compromises still further a cardio-respiratory reserve which in many instances is already barely adequate. In addition, the limiting of pulmonary expansion may promote atelectasis and pneumonia. Interference with venous return from the lower trunk and extremities may foster venous thrombosis and embolism.

Usually, both local and systemic factors contribute to the causation of ileus. The former relate to the trauma incident to handling the bowel and performing certain resections or anastomoses; the systemic factors are intimately connected with fluid balance, salt and protein metabolism. Considerable recent information has been acquired in this regard. The occurrence of distention in uremia and starvation has long been well known.

The net result of any or all of these elements is edema of the bowel wall and hypomotility. As is the case with all hollow muscular viscera, overdistention will convert a hypotonia into total atony. It therefore becomes essential, while measures are being instituted to correct the underlying cause of the hypomotility, that overdistention be prevented.

Wangensteen⁵ and Singleton et al.⁶ have demonstrated that intestinal gas is largely the result of air swallowing. Observation will demonstrate that every nauseated patient is an air swallower and continues to be so as long as his nausea persists. This is frequently seen in the operating room where in the course of a few minutes a nauseated patient may swallow enough air to fill his stomach completely. It has therefore become our policy to employ continuous gastric suction on every operatively or postoperatively nauseated patient as long as the nausea lasts. Meanwhile, basic protein and caloric needs are met with amigen or plasma and glucose.

Shock has been eliminated largely by the more extensive use of blood and plasma both during and following operation and proportionately less crystalloids. Occasionally, in already debilitated patients an obstinate, apparently irreversible type of shock will occur which will respond transiently to each transfusion, only to reappear, with death in shock eventually occuring after the sixth or eighth transfusion. I consequently have come to look on these transient responses with considerable gravity. In three autopsied cases who died in this manner following an abdominal procedure, the retroperitoneal tissues and mesentery showed extreme edema. In the treatment of shock, particularly in elderly patients, one soon learns that an ounce of prevention is worth many pounds of cure. The use of adrenal cortex and desoxycorticosterone as a shock prophylactic has been discontinued because a high incidence of refractory postoperative ileus has been observed following its use. In one of these patients coming to autopsy, marked edema of the small bowel was present.

SUMMARY

- 1. Cancer patients in general are poor risks and present a narrow margin of safety throughout their operative and postoperative periods. The importance of surgical control is therefore relatively increased.
- 2. Such control is attained only after a thorough evaluation of the patient's status has been made and the possibilities (pathologic, radiotherapeutic and surgical) of the tumor are well understood.
- 3. Its maintenance will depend on the development of more technics providing for the immediate and careful handling of unforeseen eventualities and complications. The particular adaptability of several of these technics to cancer patients is emphasized.
- Emphasis during the postoperative period should be on the prophylaxis of complications, mainly atelectasis, ileus and shock.

BIBLIOGRAPHY

- 1. Lemmon. W. T.: Method for Continuous Spinal Anesthesia; Preliminary Report, Ann. Surg. 111:141-144, 1940.
 2. Cooper, W. G.; Zumwalt, W., and Sugarbaker, E. D.:
- Report in Publication.
- 3. Coller, F. A., and Maddock, W. G.: Water and Electrolyte Balance, Surg., Gynec. & Obst. 70:340-354, 1940.
- 4. Jones, T. E.; Newell, E. T., and Brubaker, R. E.: Use of Alloy Steel Wire in Closure of Abdominal Wounds, Surg., Gynec. & Obst. 72:1056-1059, 1941.
- 5. Wangensteen, O. H., and Rea, C. E.: The Distention Factor in Simple Intestinal Obstruction; Experimental Study with Exclusion of Swallowed Air by Cervical Esophagostomy, Surg. 5:327-339, 1939.
- 6. Singleton, A. O.; Rogers, F., and Houston, F. G.: The Problem of Intestinal Gases Complicating Abdominal Surgery, Ann. Surg. 115:921-934, 1942.

FOOD AND DRUG COMMISSIONER RESIGNS

Pointing out that thus far no official publicity has appeared indicating any reason for the resignation on April 29 of Walter G. Campbell as Commissioner of Food and Drugs, of the Food and Drug Administration, or the future action to be taken in the administration of this division of the federal government, The Journal of the American Medical Association for May 6 says, "It would be unfortunate if any considerations might prevail that would interfere with the maintenance of this important agency on a standard any less than that which it has had under Mr. Campbell's direction or if the continuity of its services should be allowed to lapse in any way during the period of change."

COMMITTEE ON POSTWAR PLANNING

A PRELIMINARY REPORT AND PLEA

M. PINSON NEAL, M.D., CHAIRMAN

COLUMBIA, MO.

Because of a conviction, a request was made, as Chairman of the Committee on Postwar Planning of the Missouri State Medical Association for this privilege. The conviction is that we, as medical men, must be of one opinion, one accord, and stand as one man in many affairs at all times; but this must not prevent change in opinion and approach to meet developments. Members of this Committee are doctors of medicine and, please God, may we think and conduct ourselves in such manner as to be honored with the privilege of following the examples of the Great Physician. This Committee thinks not alone of the physician, but of him in his relation to man. We plan as doctors, not for the benefit of the doctor, but for the profession of medicine in all its implications, privileges and responsibilities.

What American medicine has done to meet wartime needs, it can, given the opportunity, do to meet the peacetime requirements of the American people. It is preparing today to respond to important postwar challenges. Shall these be met through the medical profession's own effort, or answered by governmental action or some other agency? Most people, we believe, prefer it to be our solution. Would the members of the Missouri State Medical Association have this Committee practice "watchful waiting, masterful inactivity," or dig in and work toward some goal? Shall we, like the familiar hoop skirt, cover the subject but not touch it, or shall we, like the G-string, touch the subject but not cover it? We are subject to the will of the House of Delegates but must look to physicians throughout the state for cooperation and support.

Under our program we can, if we will, preserve our political, intellectual, professional and, if you please, spiritual freedom. History reveals that wherever men endeavor to transfer their personal economic problems to the shoulders of other men calling themselves government, they have lost their liberties. It is unfortunate that today many of us seem to want so-called security more than freedom. To protect and support individual initiative and purpose, no truer words were ever written than, "Awake, arise, or be forever fallen."

FINDINGS

On the basis of information obtained from the Official Manual, State of Missouri for 1941-42, questionnaires sent out by this Committee, and records obtained from the Office of State Procurement and Assignment, the following findings are significant:

Table 1. Changes in Physician Population Ratio, Period 1910-1940

Missouri populationincreased 13 per cent
Rural populationunchanged
Number of physicians:
In the Statedecreased 10.8 per cent
In rural Missouridecreased 44.2 per cent
Population per physician increased:
From 531 to 682 throughout the State

Table 2.

From 650 to 1,160 in rural Missouri

		No. doctors, Armed Forces,
Population in 1940:		January 1944
Jackson County	477,828	170
St. Louis City	816,048	480
Out-State	2,490,788	264
Total	3,784,664	914*

*On March 23, the Office of State Procurement and Assignment announced that the number had been increased to 940.

Table 3. Physician Decrease Since Mobilization Began

No. doctors actively in	In 3 years:		
practice, prewar era	In 1944	A loss of	Per cent
Jackson County 693	523	170	24.5
St. Louis City1,793	1,313	480	26.7
Out-State1,581	984***	597	37.7
			
Total4,067*	2,820 * *	1,247	30.0

*A physician-population relation of 1 to 930 **A physician-population relation of 1 to 1,342 ***A physician-population relation of 1 to 2,531

Table 4. Number Doctors Actively in Practice, January 1944

		Age Distribution		
1	Under 60	60 or more	70 or more	
	years	years	years	
Jackson County	. 322	201	64	
St. Louis City	. 944	369	59	
Out-State	. 542	442	149	
Total	1,808	1,012	272	

In out-state Missouri, with 984 physicians actively in practice in 1944, on the basis of an eight hour working day and the days in a year, there are 2,873,280 physician manpower hours available for a population of 2,490,788. Assuming that each physician sees every member of the population theoretically who would fall to his medical responsibility during the year, and could prorate his time equally, he would be able to give each patient only 69 minutes of time. This 69 minutes would of necessity include the time spent in transit to the patient's home, hospitals, clinics and the office, as well as by the patient's bedside.

Too many people at present are dependent upon the services of one physician and when the dearth of young physicians is considered, with the probability of none being available within a reasonable time, and the normal death rate of those now in advanced years, it is obvious that adequate medical care soon will be almost an impossibility. The fact must be faced that no normal flow of physicians into rural Missouri will adequately meet the needs. In the absence of doctors of medicine people will be dependent upon those of less training and of lower standards, will be forced to use more home remedies and patent medicines, or the diagnosing and prescribing druggist. For either to happen in this age and in this country where medicine has reached an all-time high excellence, would be calamitous

Presented at the dinner for Secretaries and Presidents of County Medical Societies at the 87th Annual Session. Kansas City, April 23, 1944, and ordered published by the House of Delegates.

and a national disgrace. As an example of the physician need, there are the Missouri eleemosynary institutions. These have a total bed capacity of 11,902, with every bed occupied, and the services of twenty-eight full-time and five part-time physicians. They seriously need nineteen additional full-time medical staff members.

PROBLEMS

I. In considering the apparent most important problem connected with the practice of medicine in small towns and rural areas, the hospital seems paramount. Few realize that there are 72 counties in the State of Missouri having a total population of 1,004,126, without a hospital bed for the general care of the sick. Even though 90 per cent of the patients generally are cared for properly in their homes or physicians' offices, the other 10 per cent need hospital and laboratory facilities, and many of the 90 per cent could be handled better and more economically with such facilities available. Hospitals are the key to the rural care of the sick, and they are community responsibilities. The ability and willingness to meet the costs of their erection and maintenance are problems for the consumer, not the physician. In North Carolina,2 where community hospitals are developed, the relation of physician to population is 1 to 1,149, whereas in counties or areas where there are no hospital beds, that relation is 1 to 2,034. In the same state, of the 638 recent graduates who have located since 1925, only 64 went into towns where there were no hospitals.

Medicine of today does not function properly and satisfactory service cannot exist without hospitals. Hospitals cannot stay open and serve without finances and the patients' funds do not alone meet the costs.

Members of the armed forces, the indigent and those who are a menace, as patients suffering from leprosy, tuberculosis and mental diseases, are cared for in tax-financed institutions. For self-preservation, if for no other reason, hospitals must be maintained for the strong to take care of the weak, for those of inadequacies will always be with us.

The Missouri County Hospital Bill which permits individual counties to vote enabling acts for the construction and maintenance of *intracounty* hospitals does not permit the mergence of funds of two or more counties for the purpose of creating and maintaining intercounty hospitals. Those who are familiar with Missouri know only too well that numbers of counties whose total populations are less than 12,000 and some below 7,000, with populations per square mile being as low as 11.4, as in Reynolds County, also realize that for these a county hospital is out of the question. This Committee, sensing the need for legislative action, recommended on March 12 to Dr. McAlester, President of the Missouri State Medical Association, that "the Legislative Committee of the Council be instructed to present to the Constitutional Convention now in session representation that would lead to a change of statutes permitting two or more counties legal authorization to merge their interests for the purpose of establishing and maintaining *intercounty* hospitals for the general care of the sick within their confines in conformity with the now known 'County Hospital Bill.'"

II. A second most important problem involves an increase in the number of physicians in the practice of medicine. The ultimate purpose of this Association should be that adequate medical care, including hospital, epidemiologic and laboratory service shall be available to every person in the State of Missouri who desires it. This calls for an increase in the number of medical graduates within the state.

The Association, through the action of its House of Delegates, at the Annual Session of 1943, went on record as favoring the normal four-year program of medical education by the University of Missouri. This Committee does not feel called upon to make recommendations on a matter that has been officially and formally endorsed.

III. There must be plans for a greater, better and more intelligent use of medical facilities and services now available. Education of the public on the use and benefits of modern medical services, a problem that belongs to the Committee on Health and Public Instruction as a part of the public relations program, is called for and will produce results.

IV. The Committee on Postgraduate Course needs to concentrate and expand the postgraduate medical extension program, both intramural, as in the schools of learning and hospitals, and extramural, or the circuit lecture system, as exemplified by the district or county medical meetings. One has but to review the results in appendicitis to appreciate the significance of such effort. It is specifically essential that physicians and health departments prepare themselves for the diagnosis, treatment and control of diseases brought into Missouri by returning military personnel. The health departments can cooperate by having staff members obtain special instruction in parasitology and tropical diseases, their epidemiologists enlivened to the methods of control and of prevention, their laboratory personnel trained in the recognition of the various parasites and their diagnosis, and by keeping a register showing the geographical locations of men and women mustered out of service who have had some of these diseases and who may now or in the future be carriers.

V. A very important question is, "Why does Missouri have only fifteen county health units and, of these, thirteen located south of the Missouri River?" This set-up is entirely inadequate to handle the work intended for the health departments in Missouri. The State Board of Health is cognizant of this and is highly desirous of seeing the situation corrected. It recognizes other prob-

lems concerning its activities, and we are assured of its interest and participation in such fields and to the extent that funds are made available.

VI. Two phases of our problem are inseparable; namely, facilities for a better distribution of medical care; and an economic level of all people that would make it possible for them to meet the costs of medical services. One of the great problems of medicine is the correction of maldistribution. This is obvious when one realizes that in 1943 there was a ratio of physicians to population ranging from 1 to 1,290 in northwestern Missouri to as low as 1 to 5,100 in the southeast area of the state.3 At the present in outstate Missouri there is only one physician to 2,531 members of the population. Some method of better and more equitable distribution must bear fruit. Physicians, like any other group of professional men, do business where business is good and avoid places where it is bad. Fair remuneration to the physician is essential to good medical care. However, in the final analysis, the interest, desire and. if you please, the demand of the people largely control the degree and type of this service.

VII. Plans for extension or expansion of present facilities and services must be laid for better medical care to all people for tomorrow as well as in the postwar era. Our Committee on Medical Economics diligently labors on this and related problems. Men and women who have received such excellent medical services and hospital care while in the armed forces are going to expect, yes demand, better medical care for themselves and their families than was available prior to 1942. This does not imply complaint or criticism of the quality of Missouri or of American medical service, but to its defective distribution and cost. In the distribution of that care, two freedoms must be guarded: freedom of patient to choose his physician and freedom of physicians to serve or not under conditions where their services are desired.

VIII. Diagnostic clinics to make clinical and laboratory service available within a reasonable traveling distance would be of almost incalculable aid to physicians and their patients. In rural areas in which the population is too scattered and where economic or other factors place hospitals out of the question, clinics or medical stations under physician control, with a nurse and technician, or a combination nurse-technician, would greatly help the few available physicians and remarkably improve medical care.

IX. Two very specific problems face the existing hospitals. One is that they must increase their ability to accept and train graduates of medicine. This problem will be acute when men are mustered out of service and wish to return to hospitals to complete their short terms of training as interns and residents. These must be cared for, in addition to the annual numbers who are graduating from medical schools and will need to receive similar hospital training. The second problem again concerns finances. One of the large St. Louis hospi-

tals points to the fact that 60 per cent of its patients come from out-state Missouri. When that same institution faces a daily salary or wage cost for its general employes, mind you—not doctors or nurses—amounting to \$5.90 per patient, one recognizes the financial burden.

X. Demobilized physicians, preferably while going through the process, should have available through a national or state information agency, a list of desirable locations and positions. When this listing is attempted, students within schools of medicine, interns and residents completing their training must also be considered for they too are to be placed or located. General practice will get many physicians returning from service in the armed forces and some of these will relocate in former practices or positions and will be no problem.

There must be accurate data on the communities seeking physicians. Ideally, this information should be obtained by personal investigation. The alternative is that officers of county medical societies, in conjunction with civic, educational, financial, farm and church leaders should prepare the information. Potential candidates for a location are interested in the type and numbers of people to be served, the size of the town and the immediate outlying territory, the number of physicians in the area, their ages and specialty, if any, the economic status and per capita wealth of the area, the record of collections by doctors in the community, the size and type of schools and churches, the banking facilities, the living conditions, the water supply, sewage disposal, transportation routes, recreation opportunities, available hospital beds within reasonable distance and, probably, other factors. To acquire this knowledge would be expensive if undertaken as a personal survey, and would require the services of an interested, intelligent and sympathetic individual. This is one of several problems that should be receiving the attention of the Committee on Rural Medicine.

POLICIES AND PROGRAMS

The office of State Procurement and Assignment is "cooperating in the attempt to locate and relocate physicians returning to civilian practice." It is felt that the State Association should not enter this field of activity unless and until those now doing an excellent service find it impossible to continue.

The Council on Medical Education and Hospitals of the American Medical Association has undertaken a study of postwar graduate education facilities as a major responsibility. The American Hospital Association has a well financed postwar planning committee studying the postwar hospitalization needs of America. It is our opinion that this Association need not duplicate these efforts and we feel assured that such information as relates to Missouri can be procured through proper approach to those organizations. This lies within the province and is a responsibility of the Committee on Medical Education and Hospitals of our State Association.

By invitation, the President-Elect of the Missouri Dental Association and the Presidents of the Missouri Hospital and Nurses' Associations have met with this Committee. It was found that these organizations have committees active and alert to the needs of their respective fields. It is believed that we should not enter the activities of either of these groups other than in an advisory capacity. Our services were proffered to the three. Specific attention is called to all medical men that if and when community hospitals are planned the dental profession should be invited to participate in the planning and accorded privileges and responsibilities in community health programs.

Men who have been active in making joint medical, economic and social studies, others who are interested in federal rural health service, and some representing Missouri farm organizations have given this Committee the benefit of their plans, thoughts and programs. They have contributed much information and have been found willing and ready to take active part in any program developed by doctors of medicine for better medical care to the rural people. We can profit through their interest.

There is a most unfortunate attitude within the medical profession concerning the man in general practice. This attitude is as wrong as it is harmful, and there are needs for heroic efforts at its correction. Medical students and recent graduates need to be informed that general practice is not something the medical man who calls himself a specialist has discarded, like a housewife would throw a dead cat out the back door. The general practice of medicine requires equal intelligence and training, more and greater diversified experience and interest, more sympathy and a greater desire to serve. More general practice is the need of today. The general practitioners represent and dispense the most important medical service to most of the sick people in Missouri or, for that matter, in America. From 85 to 90 per cent, or possibly higher, of man's illnesses can be successfully cared for by this formerly known "family doctor." The other 10 to 15 per cent need to see someone with special training in diagnosis or therapy and often require curative, alleviative or corrective surgery.

We would, with you, bitterly oppose any plan or plans that would cheapen medical service, give an inferior quality to any patient or group of people, or lower medical standards.

SUMMARY OF NEEDS

- 1. More doctors of medicine, especially of general practitioners in the out-state areas.
- 2. A well planned state program for establishing hospitals.
- 3. An economic level for all people that would permit payment for medical care or, lacking this. some form of meeting costs by a voluntary prepayment plan or health insurance.
 - 4. An intensified postgraduate medical education.

- 5. A closer profession-public relation and an increase in lay health education.
- 6. A placement list of positions and locations needing men of medicine.
- 7. An expansion in the activities of the departments of health.

BIBLIOGRAPHY

- 1. Lively, Charles E., Professor of Rural Sociology, University of Missouri: Rural Health and Medical Service in Missouri, Special Report; unpublished.
- 2. Davison, Wilburt C.: Readjustments of Returning Medical Officers, J. A. M. A. 124:816-819 (March 25) 1944.
 - 3. Kleinschmidt, L. S.: Personal communication.

 4. Bradley, Frank R.: Personal communication.

CASE REPORTS OF BARNES HOSPITAL

CLINICAL AND POSTMORTEM RECORDS USED IN WEEKLY CLINICOPATHOLOGIC CONFERENCES AT BARNES HOSPITAL, ST. LOUIS

W. BARRY WOOD, JR., M.D., and ROBERT A. MOORE, M.D., Editors

CASE 47

PRESENTATION OF CASE

B. M., a salesman, aged 31 years, entered Barnes Hospital for the third time on January 22 and died January 27, 1944.

First Hospital Admission.—April 13 to April 20,

Chief Complaint.—Lower abdominal pain.

Family History.-Mother died at age 42 from a cerebral hemorrhage.

Past History.—Other than pneumonia in 1937, there had been no serious illness and the patient's general health had been good. There was nothing significant in his systemic or social history, except for occasional bouts of alcoholic excess.

Present Illness.—On April 2, 1941, the patient was doing some hard manual labor in his garden which fatigued him a great deal. That evening he developed an ache in the lower back on both sides, with a dull pain radiating around to his lower abdomen. This abdominal soreness gradually developed into a severe continuous pain which required much medication for relief. There was increasing difficulty in passing urine.

Physical Examination.—Temperature was 37.2 C., pulse 90, respiration 24, blood pressure 120/80. The patient appeared well nourished and developed. He was in considerable pain. The eyes showed no abnormalities. The upper and lower respiratory tracts appeared to be normal. The heart was not enlarged; the rate was 90; the rhythm regular; there were no murmurs. The abdomen was soft; there were no masses, tenderness or resistance. The reflexes were active. The skeletal system appeared normal. The prostate was moderately enlarged and firm.

Laboratory Findings.—Blood count: red cells 4,-850,000, hemoglobin 96 per cent, white cells 7,450; differential: basophils 1 per cent, eosinophils 1 per cent, "stab" forms 2 per cent, segmented forms 67 per cent, lymphocytes 22 per cent, monocytes 5 per cent. Blood chemistry: sugar 93 mg. per cent, non-protein nitrogen 29 mg. per cent. Kahn reaction negative. Gonococcus complement fixation test negative. Prostatic smear, no organisms or increased pus cells. Lumbar puncture, normal dynamics. Spinal fluid, protein 25 mg. per cent; Wassermann negative; colloidal gold 00000000, Pandy negative, cell count 0. Gastric analysis, free acid present in the fasting specimen, insufficient to titrate. Electrocardiogram showed sinus tachycardia. Roentgenograms of the gastrointestinal tract, indeterminate. Pyelograms, indeterminate.

Course in Hospital.—During the first four days, the patient required codeine and morphine frequently for the relief of abdominal pain which gradually disappeared. Report of a genito-urinary consultation after cystoscopy and pyelography indicated normal findings. The patient appeared well on discharge. A diagnosis of nervous exhaustion and transient volvulus (?) was made.

Second Hospital Admission.—May 6 to May 18, 1941.

Interval History.—Since discharge, about two weeks previously, the patient had suffered persistent generalized muscular aching and soreness which had required bed rest for part of each day. The evening before admission he vomited without known cause. The patient stated that he was growing markedly nervous and apprehensive and felt under strain. He changed his job on April 31 and was unable to assume his new position because of present complaints. He maintained that he had lost 30 pounds during this interval.

Physical Examination.—Temperature 37 C., pulse 112, respiration 22. The patient did not appear ill but he complained bitterly of muscular aching. There was a faint macular erythematous eruption over the bridge of the nose and cheek in a butterfly pattern and on the forehead. There was no change otherwise from the findings of the general examination on his recent previous admission. Neurologic examination revealed generalized muscular weakness. The patient could not stand well in the Rhomberg position because of this weakness. The cranial nerves were intact. The muscles all appeared flabby and there was definite weakness in all extremities. There was some digital tremor-more on the left than on the right; no fibrillary twitchings. Sensory examination was normal. Tendon reflexes were increased at the knees and ankles but no clonus was elicited.

Laboratory Findings.—Blood count: red cells 5,-390,000, hemoglobin 109 per cent, white cells 8,000; differential: "stab" forms 13 per cent, segmented forms 45 per cent, lymphocytes 33 per cent, monocytes 9 per cent. Urinalysis: albumin trace, microscopic normal. Kahn test negative.

Course in Hospital.—The patient complained of excruciating pain in his muscles which, however, was readily relieved by .01 gram of seconal. He

revealed that he had had large amounts of narcotics during his recent illness and these were ordered discontinued. Two days after admission, a positive Hoffman sign appeared on the left. There were no pathologic toe signs. The patient continued to complain of pain in his muscles but at no time was tenderness elicited. He was kept under paraldehyde at times. During his stay there was a mild elevation of temperature and two days before discharge it rose to 38.2 C. and continued for one day. At this time he appeared irrational, was noisy, cried out from pain and would not respond to questions. The pulse rate varied a great deal and was usually elevated from 90 to 120. A final neurologic consultation stated that the patient was actively psychotic, probably with drug addiction, and he was referred to Farmington.

Third Hospital Admission.—January 21 to January 27, 1944.

Interval History.—Shortly after discharge from the hospital, the patient's physician prescribed daily injections of insulin, under which there was marked improvement of symptoms in that pain in the muscles subsided although muscular weakness was slow to improve. Muscle volume and strength gradually returned to normal. The patient was able to drive an automobile and carry on his activities as a salesman. There was some persistent atrophy of the small muscles of each thumb. He continued to work until December 14, 1943, when he developed "flu." He remained in bed one week, after which his respiratory symptoms subsided. However, he became increasingly weaker and had to spend most of each day in bed. The pains in the muscles returned but were not as severe as previously. Weakness became progressive until he was no longer able to stand. At times there was temporary incontinence of urine. His voice became weak and shaky and he developed sensations of "pins and needles" in the tips of his fingers and toes.

Physical Examination,—Temperature 37 C., pulse 100, respiration 22, blood pressure 150/75. The patient appeared chronically ill. He had great difficulty in changing his position in bed and was unable to flex his elbows or raise his arms. There was marked muscular atrophy of the shoulders, arms, forearms and hands. Thenar eminences were flat and the interesseous spaces sunken. The voice was weak and high pitched and inconstant in volume. He could not clench his fists but could move his fingers slightly and his toes a little more. Cranial nerves were intact and there were no evident sensory disturbances. All reflexes were depressed. The triceps, radial, abdominal and cremasteric reflexes could not be elicited. There were no pathologic toe signs. There was evident incontinence of urine. On general examination, the eyes and eyegrounds were within normal limits. There were no abnormalities in the upper respiratory tract. Slight impairment of percussion note was noted throughout both lungs but there were no other abnormal findings. The heart borders were not well defined; the rate was 100; the rhythm regular; there were no murmurs or accentuations. No abnormal findings appeared in the abdomen. The rectal sphincter tone was good. The prostate was not enlarged.

Laboratory Findings.—Blood count: red cells 4,-390,000, hemoglobin 13.5 grams, white cells 7,450; differential: "stab" forms 3 per cent, segmented forms 78 per cent, lymphocytes 11 per cent, monocytes 4 per cent. Urinalysis normal. Kahn test negative. Lumbar puncture, normal dynamics; proteins 20 mg. per cent; 17 cells, all lymphocytes; Pandy negative; Wassermann negative, colloidal gold 00000000. Electrocardiogram showed sinus tachycardia.

Course in Hospital.—On the first hospital day the patient was unable to void and had to be catheterized continually, and on the third day a retention catheter was inserted. During this time the patient frequently spoke incoherently and appeared to be disoriented. He apparently was not in pain. Muscle-nerve irritability studies, performed on January 26, showed no faradic response in the upper arms or of the extensors of the lower arms. There was a normal response followed by fibrillation of the flexors of the lower arms. Galvanic response was elicited in the radial extensors but not in the ulnar extensors. A muscle biopsy of the left deltoid was performed. There was no evidence of gross pathology. Microscopically, there appeared to be an increase in lymphocytes between the muscle bundles. Most of the muscle bundles showed cross striations but in some areas there was loss of striation. No pathologic changes were observed in the vessels. A diagnosis of muscle degeneration was made. On January 27, the patient's condition became decidedly worse in that the temperature suddenly rose to 39 C., the pulse rate to 140, and the respirations to 48. The blood pressure fell to 105/70. Bronchovesicular breathing was noted at both lung bases. The heart sounds were weak and somewhat obscured by the rapid, labored respiration; no murmurs were audible. There was no change in the neurologic examination from that of admission except that during the last twenty-four hours the patient swallowed liquids only with great difficulty and could no longer speak. The white blood cell count rose to 21,350 with 6 "stab" and 85 segmented forms. Later in the day, the extremities became cold and cyanotic. Many moist rales appeared throughout both lung fields. The blood pressure was no longer obtainable and the patient expired.

CLINICAL DISCUSSION

DR. HARRY ALEXANDER: I am pleased to see that many of the neurologists are here today for I believe we shall need them in order to arrive at a diagnosis. This patient, a fairly young man, came into the hospital complaining of weakness and pain in the muscles, and three years later returned with the same complaints, after a comparatively free interval. Before discussing what his illness may have been, I think it would be well to list his important symptoms and signs so that we can attempt to reconcile them with the various

diagnoses proposed. He had pain in the muscles, flaccid paralysis, the reaction of muscle degeneration, the microscopic pathologic picture of muscle degeneration, atrophy of muscles, bulbar signs, no objective but some subjective sensory disturbances, loss of bladder sphincter control, a spinal fluid containing 17 lymphocytes on one occasion, recurrence, abdominal pain, irrationality and a skin eruption. Dr. Gildea, what is your opinion as to the nature of his illness?

DR. ÉDWIN F. GILDEA: Basically, it is an acute degenerative process of the motor neurons, involving somewhat the sensory neurons. It began like a tabetic process, and then progressed up the cord to involve the cortex. I would call it acute, rapidly progressive, cen-

tral nervous system degeneration.

DR. ALEXANDER: Would that fit in with a diagnosis of neuronitis or infectious polyneuritis?

DR. GILDEA: Infectious neuronitis would be the best way to designate it. I am thinking of it as a process similar to lead encephalopathy.

Dr. Alexander: Is lead encephalopathy included in

infectious polyneuritis or neuronitis?

DR. GILDEA: Neuronitis would include it. DR. ALEXANDER: Dr. Jones, do you agree?

DR. Andrew B. Jones: The pathologic picture with lead is somewhat different. I would prefer calling this man's illness infectious polyneuritis rather than neuronitis.

DR. ALEXANDER: We can call it by both names, as long as we all understand what is meant. Are pain in the muscles and flaccid paralysis characteristic of this condition?

Dr. Jones: Yes.

Dr. ALEXANDER: Reactions and pathologic picture of degeneration and atrophy?

Dr. Jones: Yes.

Dr. Alexander: Bulbar signs?

Dr. Jones: They may occur.

Dr. ALEXANDER: What about the minimal sensory disturbances?

Dr. Jones: Sensory disturbances are frequently minimal in infectious polyneuritis.

Dr. Alexander: Is it not exceptional to have the process almost purely motor?

Dr. Jones: No. In the so-called Guillain-Barre syndrome, which is a variation of infectious polyneuritis, there is little disturbance of objective sensation.

Dr. ALEXANDER: But this man's disease does not conform with the Guillain-Barre syndrome.

DR. JONES: The only difference is that in the Guillain-Barre syndrome there is an acellular hyperalbuminosis of the spinal fluid.

DR. ALEXANDER: What about facial paralysis in those cases? Are they ever absent?

Dr. Jones: They may or may not be present. It depends upon the extent of the lesions.

DR. ALEXANDER: Is loss of sphincter control rare?
DR. JONES: No, it is very common in infectious poly

Dr. Jones: No, it is very common in infectious polyneuritides.

Dr. Alexander: What about the spinal fluid?

Dr. Jones: It varies.

Dr. Alexander: Is not the spinal fluid in this case unusual for infectious polyneuritis?

DR. JONES: No. Such a picture has been observed.

Dr. Alexander: What about recurrences?

Dr. Jones: They occur.

DR. ALEXANDER: Are they not rare?

Dr. Jones: Guillain and Barre reported ten cases, of which three had recurrences.

Dr. ALEXANDER: Is the Guillain-Barre syndrome a very definite variant of infectious polyneuritis, wherein facial paralysis is common and the characteristic spinal fluid is quite different from this?

Dr. Jones: Facial paralysis is not a characteristic feature—some of the patients have it, some do not.

DR. ALEXANDER: What about abdominal pain?

DR. JONES: There may be pain anywhere in the body. DR. ALEXANDER: This man's pain was very acute and

was a commanding symptom.

Dr. Jones: The pain in infectious polyneuritis is more frequently across the shoulders, in the lower back and legs.

Dr. Alexander: Acute abdominal pain would be rare then?

Dr. Jones: If limited to the belly, yes.

DR. ALEXANDER: What about irrationality?

Dr. Jones: It is commonly observed.

DR. ALEXANDER: And what about the skin eruption?
DR. JONES: That is not a part of the picture, as far as

I know.

Dr. W. Barry Wood: This man's illness followed influenza.

DR. ALEXANDER: Only the second attack. The first attack followed fatigue brought on by working in his garden. Dr. Levy, what diagnosis would you suggest?

DR. IRWIN LEVY: Amyotrophic lateral sclerosis. No tenderness was actually observed in the patient's muscles.

DR. Jones: I disagree with that statement. I squeezed his muscles on several occasions and they were tender.

DR. RICHARD S. WEISS: I agree with Dr. Jones.

Dr. Alexander: Does it make a material difference whether or not he had tender muscles?

DR. LEVY: Yes, it does. The point is that the illness disappeared on insulin therapy. If there were only pain, and not tenderness in the muscles, improvement under insulin would suggest that they had been disturbed functionally.

Dr. Jones: On the first admission the patient had pain in his belly and thighs. He left the hospital, continued to have pain, reentered, and then became irrational. It was said that this was caused by drugs. He immediately had flaccid paralysis. His physician prescribed insulin and after a period of time his condition improved. His muscles never returned to normal size, but he was able to work. I thought first of amyotrophic lateral sclerosis but when I heard the history of "flu" on December 14, followed a few days later by pain and a recurrence of flaccid paralysis, the diagnosis of amyotrophic lateral sclerosis seemed less probable. I thought he had distal blunting of sensation. Then the question of infectious polyneuritis arose. Dr. Sobin's suggestion of dermatomyositis I did not think likely. Some of the other interns suggested porphyria. But my conclusion, antemortem, was that this man had infectious polyneuritis that had recurred after an attack of "flu." I still think so.

DR. ALEXANDER: Did you believe, Dr. Weiss, that this disease resembled dermatomyositis?

Dr. Weiss: I thought it had a strong resemblance. The pain and tenderness in the muscles, associated with a definite but rather faint bluish red inflammatory condition of the skin above the eyebrows and around the lids, and the butterfly area of the cheeks, were strong suggestive evidence. The color was the dusky bluish red that one does not see in disseminated lupus to the extent that one does in dermatomyositis. When I pressed firmly on his muscles he exhibited signs of pain. My impression clinically was that the man had dermatomyositis, and I still think so. He had other signs and symptoms frequently associated with it. He had a sort of pseudoparalysis rather than a true paralysis—that is he did not move because it was painful to move. There are often reactions of muscle degeneration. Sensory disturbances are not marked, in my experience. Bladder sphincter control may be lost. The spinal fluid shows few if any changes. Recurrences are common. I have never, however, seen abdominal pain as severe as this patient's in the early attacks. The irrationality does not come on in dermatomyositis until very latenear death. The skin eruption of course is common in dermatomyositis, although dermatomyositis without dermatologic manifestations has been described. The weight of evidence, from my point of view, points to dermatomyositis.

Dr. Alexander: Dr. Heinbecker, you made a biopsy of a section of muscle. Was the skin included in the

biopsy?

DR. PETER HEINBECKER: The biopsy was done under local anesthetic, and I took the section from the left deltoid muscle. In cutting through the skin I did not see anything abnormal. The subcutaneous tissue was scanty in amount. The muscle definitely failed to contract on cutting. I think that is important. I can only bear out the statement that this man had marked tenderness in his muscles. In carrying out the biopsy I had evidence of that. The microscopic picture impressed me as being much more characteristic of muscle when the nerve supply has been cut off than of a dystrophy of muscle. I did not see accumulations of lymphocytes greater than normal in the sections. The fibers were atrophied. There was fatty infiltration but no large swollen fibers with fatty degeneration, such as are found in dystrophy.

Dr. Alexander: There were no nerve fibers visible?

Dr. Heinbecker: No.

Dr. Alexander: Would you care to express an opinion as to what this disease was?

DR. HEINBECKER: No, that is out of my field, but I will say that it is not, in my opinion, a dystrophy—that is, a disease primary in the muscle.

Dr. Jones: The man was paralyzed—he did not have merely a pseudoparalysis. Paralysis was what killed him.

DR. Wood: Patients with dermatomyositis may die of pneumonia, as this patient did. Dr. Goldman made that diagnosis at a clinicopathologic conference about a year ago. So even if it was pseudoparalysis, the patient might have died of pneumonia, Dr. Jones.

DR. Jones: Yes, but this man was paralyzed. He got

DR. JONES: Yes, but this man was paralyzed. He got pneumonia because he could not swallow or breathe.

DR. ALEXANDER: It was suggested that this disease might be porphyria. That is to be seriously considered. It might account for the sequence of events. At the onset of this condition there is severe abdominal pain, caused apparently by spasm of the muscle. It occurs frequently in persons who have been taking drugs. We have no indication that this patient took sleeping drugs, but certainly it developed later on that he was given a great many sedatives. The fact that porphyria may recur, or go on for a period of months or years is also in keeping. The flaccid paralysis, the reactions of muscle degeneration, the bulbar signs, the loss of sphincter control, the irrationality and the recurrences should compel us to mention this distinct possibility. Dr. Jones, do you agree that this is a possibility?

DR. JONES: Yes, I do. The man had a descending type of paralysis, which is in keeping with that described in

porphyria.

Dr. Gildea: What about the blood picture? Do not anemia and changes in the white count usually ac-

company porphyria?

DR. ALEXANDRIA: In the acute phase, there may be a leukocytosis. There is also a mild elevation of blood pressure in porphyria, and this patient had that too. I thought it might be well to spend a few minutes hearing something about porphyria. This patient's urine was not reported to be red, and there were no urinalyses on his first admission. The urinalysis on his last admission was not significant. But sometimes the urine may not be noticeably red. I have asked Dr. Reinhard to present briefly the relevant facts.

DR. Edward Reinhard: Porphyrin metabolism is a confused subject. All we can say is that porphyrins are pigments which are present in hemoglobin and myo-

globulin. There are various pathologic conditions in which porphyrin metabolism may be disturbed-any condition of increased hemopoietic activity. In pernicious anemia there is sometimes increased excretion in the urine and stool, and in other types of anemia too. Porphyrin metabolism is interfered with in liver disease. In addition to these diseases in which disturbance of porphyrin metabolism is secondary, there are two conditions in which there is a definite primary disturbance of porphyrin metabolism: congenital porphyria and acute porphyria. This case is not typical of congenital porphyria. That occurs in infants and young children. There is usually a family history. This man's disease would have to have been the acute type. Against the possibility are the facts that it is usually a disease of women, and that it is characterized by nausea and vomiting. This man vomited only once. He had abdominal pain and yet no muscle spasm. That fits in very well with acute porphyria. I do not know whether he even had a spasm of abdominal muscles or not, but if he did it was not very severe. The skin eruptions are common in the congenital type but uncommon in the acute. With exposure to sunlight certain eruptions may appear. The psychosis fits in.

Dr. Alexander: Dr. Massie, you saw this patient first. Were there any objective findings when he came in

with severe abdominal pain?

Dr. Edward Massie: After we had observed him for a few days, we decided that he had a psychosis, and advised neurologic consultation, to which the family finally consented. I was not impressed by any of the physical findings.

DR. SOLOMON: If this man's disease had something to do with porphyrins, we should consider the narcotics and the medication, which may produce porphyria. Some of the sulfonamides and barbiturates do this. However, the severe abdominal pain could only be explained by an acute incident of porphyria, which could not have been caused by medication.

DR. REINHARD: The urine may look normal in porphyria. In the milder cases it may develop the red color only after prolonged exposure to light.

DR. ALEXANDER: Are there any other suggestions or remarks? It is agreed that neuronitis is the most likely diagnosis?

DR. WEISS: No. I think dermatomyositis is the most

likely diagnosis.

DR. WOOD: What is your opinion, Dr. Alexander?
DR. ALEXANDER: I will go along with the experts.

CLINICAL DIAGNOSIS

Bronchopneumonia of undetermined cause. Polyradiculoneuritis of undetermined cause. (?) Dermatomyositis.

DR. ALEXANDER'S DIAGNOSIS

Infectious neuronitis.

ANATOMIC DIAGNOSIS

Dermatomyositis involving skeletal and cardiac muscle.

Atrophy of the muscles of the shoulder girdles, hands, forearms, feet and calves of the legs.

Degeneration of myelin sheaths of peripheral nerve,

Bronchopneumonia of the lower lobe of the left lung.

PATHOLOGIC DISCUSSION

DR. MARGARET SMITH: The bronchopneumonia was the immediate cause of death. We had sections from the brain, spinal cord and some of the peripheral nerves. In examining them we found no evidence of any inflammatory process. In the sections of the peripheral nerves there was evidence of a slight degeneration of myelin, as manifested in the appearance of droplets, which stained

as neutral fat with Sudan III. In the anterior horn of the spinal cord there was an occasional shrunken pyknotic cell, which we thought abnormal. I consulted at length with Dr. Russell, and he agreed with me that the findings in this case could be explained as the result of a muscular destruction.

We felt that the changes which were found in the heart were of the same nature as those in the skeletal muscle, and that they were of diagnostic significance.

Dr. Jones: I would like to ask Dr. Heinbecker if he has any comment to make in regard to the muscles. I am not convinced.

DR. Heinbecker: I think we ought to have seen sections of the brain and spinal cord. Where were the muscle sections taken from?

Dr. ZOLA COOPER: From the rectus, pectoral and deltoid.

DR. Heinbecker: In all the muscle bundles I saw there were numerous cross striations, and I certainly would not have expected those muscles to be paralyzed.

DR. SMITH: We have a number of sections. The muscle picture is representative in only a few places.

DR. HEINBECKER: I think a loss of innervation of muscle could produce this picture, rather than a primary disease of the muscles.

Dr. Smith: How would you explain the similar changes in the heart muscle?

DR. Heinbecker: I cannot explain them. There is no necessary correlation between the changes in the heart muscle and the changes in the muscle throughout the body. I saw this man when I did the biopsy and he was having marked bulbar symptoms. He was having difficulty in breathing. I think he undoubtedly showed the picture that is produced by a deficiency of innervation of muscle.

DR. ALEXANDER: Would not myositis involving the diaphragm give that picture?

DR. Heinbecker: The muscle sections that I saw would never cause paralysis.

DR. WEISS: In the early stages of dermatomyositis it is sometimes very difficult to pick up a section of muscle that is affected, and it is often necessary to make three or four biopsies before finding an area consistent with the diagnosis.

DR. HEINBECKER: The living biopsy was taken from a totally paralyzed muscle. What stains were used to demonstrate changes in the peripheral nerves?

DR. SMITH: Marchi's, fat stains and osmic acid. We have felt that the changes in the muscle, in the cardiac and skeletal muscle, with the skin manifestations, were diagnostic of dermatomyositis.

CASE 48

PRESENTATION OF CASE

C. M., a 53 year old housewife, entered Barnes Hospital for the first time on January 24 and died February 16, 1944.

Chief Complaint.—Increased hunger, loss of weight, abdominal pain, pains in the extremities and shortness of breath on exertion.

Family History.—Father died at 58 from Bright's disease. Mother died at 56 from dropsy. One sister had had sugar in the urine.

Past History.—The patient had always lived in St. Louis and worked as a masseuse for many years. She married at the age of 45 and since that time had taken care of her house. As a child she had had pleurisy on the right side and; a few years later, malaria and diphtheria. Her health otherwise had always been good. She had always been obese and had weighed about 200 pounds for many years.

Preceding the menopause at the age of 48, she received injections of estrogens and pituitary substance: and took thyroid extract by mouth. She used no alcohol, tobacco or drugs.

Present Illness.—About eleven months before admission, the patient developed severe itching of the vulva for which she sought medical advice and was told that she had sugar in the urine. For some two years previously, her appetite had been enormous and there had been marked thirst and frequency of urination. She was not placed on a diet. The itching continued for six months and she went to another physician who prescribed a low carbohydrate diet and local applications. Under this regimen the itching subsided. Ten weeks before admission, the patient had "flu" with cough which persisted after the fever had subsided. There never had been any sputum. Three weeks previous to entry, she began having pain in the upper abdomen of a dull aching character. This had no relation to meals and at times was felt in the right upper quadrant and frequently in the left chest. This pain was aggravated on deep inspiration. It came at irregular intervals and lasted for from one to two hours. About this time, the patient began to have swelling of the left leg with appearance of veins never before noticed. Similar manifestations then occurred on the right leg. There never had been redness or heat. These swellings subsided and similar swelling occurred in the right arm. Some dyspnea on exertion and swelling of the ankles had been present during the latter part of her illness. During this time she lost some 20 pounds in weight.

Physical Examination.—The patient seemed well nourished and did not appear to be ill. The skin was clear. The pupils reacted to light and accommodation: retinal arteries showed marked nicking of the veins at the crossings. There was some thickening of the left ear drum. The teeth were in very poor condition and the gums were retracted. There was some dulness at the base of the left lung posteriorly but no alteration of breath or voice sounds; no rales were heard. The diaphragms on both sides descended but little. The heart was not enlarged, the rhythm was regular, the sounds of good quality; there were no niurmurs. The abdomen was held somewhat rigidly and, because of this and obesity, could not be palpated satisfactorily. The veins on both legs were distended and hard when the legs were hanging; they were not palpable in the horizontal position. Dorsalis pedis pulsations were good. The arm veins likewise were large and hard on the right. The patellar reflexes were absent on both sides. The biceps reflexes were present. There were no abnormal toe signs. Pelvic examination revealed the body of the uterus to be enlarged. Rectal examination was normal.

Laboratory Findings.—Blood count: red cells 4,-220,000, hemoglobin 12.6 grams, white cells 6,600; differential: eosinophils 2 per cent, "stab" forms 4 per cent, segmented forms 71 per cent, lymphocytes 11 per cent, monocytes 7 per cent. Urinalysis: reaction 5.5, sugar 4 plus, microscopic normal, acetone negative. Blood chemistry: sugar (fasting)

296 mg. per cent, nonprotein nitrogen 17 mg. per cent. Sedimentation rate: actual packed red blood cells 45 per cent, corrected sedimentation index .7 mm. per minute. Electrocardiogram showed sinus tachycardia.

Course in Hospital.—January 26: A friction rub was heard just mesially to the cardiac apex. This was to and fro and synchronous with expiratory excursions but showed variations in intensity with each heart beat. It was believed to be pleural rather than pericardial. Over this area, the patient complained of considerable pain which was worse when lying on her back or on the right side. There were no other pulmonary signs.

January 27: A roentgenogram of the chest revealed pleurisy at the left base with fluid in the left pleural cavity, a left cervical rib and a long transverse process of the seventh cervical rib on the right.

January 30: The patient had run a persistent, moderate fever since admission. Sugar had been constantly present in the urine. The blood sugar varied from 289 to 430 mg. per cent. On this day the patient suddenly developed severe dyspnea. There had been no similar attacks previously. Examination of the lungs showed no alteration from the findings on admission. The pulse rate rose suddenly from 90 to 140, but nothing abnormal was heard in the heart. The patient was given aminophylline intravenously, nitroglycerine under the tongue and morphine and atropine.

January 31: On this day the temperature rose to 39 C. and the pulse rate to 120. The patient was very dyspneic, moderately cyanotic and was very apprehensive. The blood pressure was 146/70. An electrocardiogram showed distinct change from that on admission in that there was inversion of the T waves in leads 3 and CF-2 and elevation of the S-T segment in lead 3, suggesting a recent posterior myocardial infarction.

February 2: Temperature 39.2 C., pulse 115. The patient suddenly developed severe pain in the left flank which required morphine for relief. The white blood cells were 13,500 with 7 stab forms and 81 segmented forms. Physical signs in the chest were unchanged.

February 4: The patient was still cyanotic. The temperature and pulse rate remained elevated. Urinalysis showed 2 plus albumin, a trace of sugar and a negative microscopic picture. The fasting blood sugar was 231 mg. per cent and the nonprotein nitrogen 29 mg. per cent.

February 6: The patient had been coughing without production of sputum. A needle was inserted into the left pleural cavity and 3 cc. of sanguinous fluid were obtained. The pleural fluid on culture showed no growth. Urine culture gave no growth and urinalysis was essentially normal. The white blood cell count was unchanged.

February 8: The patient was listless and drowsy but she could be aroused without difficulty and she answered questions coherently. The lungs were stated to be clear; the heart sounds were somewhat muffled. The radial pulse on the right was very feeble and scarcely palpable. No blood pressure reading could be obtained on that side. The arm, however, felt warm. The left radial artery appeared normal. Blood pressure on that side was 150/70. The white blood cells had risen to 24,600 with 6 "stabs" and 90 segmented forms. The urine again showed 4 plus sugar, 1 plus albumin, and from 8 to 10 white blood cells per high power field.

February 10: The patient was very drowsy and responded only to powerful stimuli. Respirations were definitely of the Cheyne-Stokes type. Breath sounds were diminished over the left axilla. The abdomen was distended and there was shifting dulness in the flanks. Later in the day the patient aroused somewhat and complained of pain in the right calf posteriorly just below the knee. The lower two thirds of the right leg was deeply cyanotic and cold, and no pulsation could be felt. Sensation over the involved area was gone. The patient was unable to move her toes or foot.

February 15: The right pupil was widely dilated. The patient was in coma with rapid, deep respirations. Cyanosis was evident. There were a few coarse rales at the right base. The left radial pulse was weaker. The abdomen was more distended. The urine output was diminished. There was slight edema over the left leg and sacrum and ecchymosis of the inner aspect of the left thigh, beneath which a thrombosed vein was felt. The blood sugar was 130 mg. per cent although the patient was receiving 500 grams of carbohydrate and 215 units of insulin daily. At 8:00 p. m. respirations had increased to 44 per minute, temperature continued more than 39 C. and the pulse rate varied between 110 and 130. The right hand was deeply mottled and cyanotic but remained warm.

February 16: No change had been noted during the night and at 8:34 a. m. the patient died.

CLINICAL DISCUSSION

DR. HARRY ALEXANDER: This case presents a very interesting diagnostic problem. A middle-aged woman with diabetes, which was not well controlled, had a disease of the vascular system in which both the arteries and the veins appeared to be involved. There are several conditions which cause manifestations in both arteries and veins, but the problem is to reconcile one of these with the circumstances of this case. Are there suggestions?

Dr. Barrett Taussig: I think Buerger's disease involves both arteries and veins.

Dr. Alexander: Yes, Buerger's disease—thromboangitis obliterans—characteristically does involve arteries and contiguous veins. What is against Buerger's disease in this case?

DR. CARL MOORE: The fact that the patient was a woman.

DR. ALEXANDER: Yes, Buerger's disease occurs in men in over 90 per cent of cases. Anything else?

Dr. HAROLD SCHEFF: Her age is against it. It usually occurs in young people.

Dr. Alexander: Dr. Olmsted, what is the age incidence of Buerger's disease?

DR. WILLIAM OLMSTED: It occurs chiefly in the third and fourth decades.

Dr. Alexander: Is there anything else for or against it?

DR. OLMSTED: The course is a little too acute.

Dr. Alexander: Yes, Buerger's disease is usually a long-drawn-out affair.

Dr. Edward Massie: The patient did not smoke; at least four-fifths of the victims of Buerger's disease are heavy smokers. Physiologic as well as clinical observations indicate that smoking does cause arterial constriction.

DR. ALEXANDER: Is there further discussion about Buerger's disease? I got the impression from the history that the pain in the extremities was not very acute, and that the lesions of the veins that were apparent were not very acute. In Buerger's disease is there usually an acute pain?

DR. OLMSTED: The pain is usually very severe.

Dr. W. Barry Wood: According to the history this disturbance started in the veins. That is unusual in Buerger's disease.

Dr. Alexander: Are there other suggestions?

Dr. Massie: Primary pelvic vein thrombosis.

Dr. ALEXANDER: How would pelvic vein thrombosis affect her hands?

DR. MASSIE: I am thinking of the process in the hands as being secondary to the process in the pelvic region and the lower extremities. She had some abdominal signs in keeping with a pelvic vein thrombosis, and her presenting symptoms were in the lower extremities. In thrombophlebitis there may be an associated vasospasm sufficient to give the impression that there is an arterial occlusion.

DR. Woop: Dr. Homans has studied this problem and has emphasized the point that Dr. Massie brought out. Dr. Homans observed at operation marked local constriction of the artery adjacent to the thrombosed vein in some of his patients. It is probable that a reflex traveling by way of sensory nerves from the vein to the cord and coming out through the sympathetic vasoconstrictors, causes a constriction of the artery. The arteriospasm can be relieved immediately by cocaine block of the sympathetic innervation of the vessels, thus causing the pain to disappear.

DR. ALEXANDER: Were these large arteries?

Dr. Wood: Yes.

DR. ALEXANDER: Pelvic vein thrombosis could cause thrombosis of the veins of the lower extremities, but I am not clear as to how the upper extremities could have been affected. Do you believe a pulmonary infarct could produce thrombi in the systemic circulation? It would have to go through the arteries.

Dr. Massie: The rarer possibility is that there is a patent foramen ovale.

Dr. Alexander: Yes, one must always think of that. Dr. Llewellyn Sale: If these arterial symptoms can be described on the basis Dr. Wood suggested, and if this is primary migratory thrombophlebitis, one would have to think of carcinoma of the body or tail of the pancreas.

DR. ALEXANDER: Do you know, Dr. Sale, whether any arterial thromboses have been described?

Dr. Sale: I am not aware of any.

DR. ALEXANDER: I looked at Dr. Sproul's article this morning, and he did not mention it. He listed the literature up to the time of his writing (1938); the various conditions in which arterial thrombosis occurs were tabulated, and no mention was made of carcinoma of the pancreas to account for arterial thrombi. So, as Dr. Sale mentions, in this condition of multiple venous thrombosis we have now learned to consider very seriously carcinoma of the body or tail of the pancreas. Carcinoma of the stomach or of the liver are associated more rarely.

DR. OLMSTED: We know that in carcinoma of the islet cells there is hyperinsulinism. In carcinoma of the pancreas could there be a hypertrypsinemia and, if so, is it not possible that trypsin causes coagulation?

Dr. ALEXANDER: Will you discuss that theory, Dr. Sale?

Dr. Sale: Sproul himself offers an explanation that is based on trypsin, but he offers it only as a working hypothesis.

DR. JULIUS ELSON: One explanation of the multiple thrombi in connection with carcinoma of the liver was that the production of heparin was impaired.

DR. ALEXANDER: That is true, but multiple venous thrombi in association with carcinoma of the liver are rare. It is less frequent even than with carcinoma of the stomach, which occurs in less than 3 per cent of the cases. If one may accept this demonstration of Homans' that thrombosis of the vein may cause spasm of the arteries to the point of occlusion, then this diagnosis seems valid. There is, however, another interesting point about these cases. Sproul had five cases of carcinoma of the body and tail of the pancreas with multiple thromboses, and in four there were vegetations on the heart valve. They were sterile, and fibrinous; some were blood clots, and looked macroscopically like subacute bacterial endocarditis. No organism was ever cultured. In no case was there arterial involvement. With vegetations on the mitral or aortic valve, or both, one conceivably could account for thrombosis arising from these vegetations. Dr. Olmsted, how often does carcinoma of the pancreas result in diabetes by destruction of the islands?

Dr. Olmsted: In about 2 per cent—twice the occur-

rence of glycosuria in the population.

STUDENT: In a report by Levy and Lichtman of nineteen cases of carcinoma of the body and tail of the pancreas, eleven were studied. Five showed a disturbance of sugar metabolism. In that same report there were two cases of femoral artery emboli. That was in the Archives of Internal Medicine, volume 65, 1940.

DR. ALEXANDER: That is interesting. In these cases of carcinoma of the pancreas with diabetes, is the

diabetes characteristically as severe as this?

Dr. Olmsted: I would not know. In this particular case, the fact that the history shows diabetes in the patient's sister takes away much of the significance. The disease seems to be just an ordinary case of diabetes and the other process incidental.

Dr. Alexander: Dr. Glassberg, what do you think?

DR. Bertrand Glassberg: I agree with Dr. Olmsted that the diabetes was an ordinary case and that the other process was not related.

STUDENT: In a French journal there was a case reported in 1936 in which the symptoms of diabetes appeared two years before the symptoms of carcinoma of the pancreas. It was a tubular carcinoma.

Dr. Sale: Does phlebosclerosis accompany diabetes as arteriosclerosis does?

Dr. Olmsted: Judging by the interns' difficulty in spearing some of the veins, I should say that it does.

DR. ALEXANDER: Are there other diagnoses?

Dr. Massie: Arterial emboli and causes therefor should be considered in this case.

Dr. ALEXANDER: With arterial occlusion or stasis of blood one may have stasis of blood in the veins. The patient had diabetes, and the history states that in her retinal arteries there was some degree of narrowing. Even with a normal blood pressure and severe diabetes such as this, may one reasonably assume that the patient may have had arteriosclerosis, Dr. Glassberg?

Dr. Glassberg: No question about it.

Dr. ALEXANDER: According to Sproul's article, all cases of arterial thrombosis in his series were based on arteriosclerosis. Here is a patient who probably had peripheral arteriosclerosis and therefore was liable to have arterial thrombosis. Would you say emboli or thrombi, Dr. Massie?

Dr. Massie: Both would have to be considered.

Dr. Alexander: Either may result in venous thrombosis. Any other suggestions?

DR. Wood: I think it would depend upon how long these signs of arterial occlusion lasted whether this was a reflex phenomenon or whether it resulted from arterial occlusion. How long did the signs and symptoms last in this patient?

DR. ALEXANDER: Dr. Bulger, on what date, according to the record, did the occlusion of the arteries begin?

Dr. Bulger: About ten days or two weeks before death.

Dr. ALEXANDER: The signs of occlusion remained throughout?

Dr. Bulger: Yes.

DR. ALEXANDER: Then the patient had signs of occlusion in her right arm later than that?

Dr. Bulger: No, they occurred about a week or ten days before death. I might say that I was much impressed by the fact that the radial pulse disappeared soon after a venipuncture in the right arm.

Dr. Alexander: Dr. Wood, how long do these spasms

last?

Dr. Wood: I do not know exactly, but I think the

duration in this case is a little too long.

DR. ALEXANDER: Here we have an acute process involving the arteries and veins. Periarteritis nodosa is such a process, causing fever, leukocytosis, arterial and venous lesions. Will anyone support that as a diagnosis? No one? The particular thing against it is that it is usually the smaller arteries that are involved in periarteritis nodosa. For a larger artery to be occluded is unusual. Are there further suggestions?

DR. ELSON: In reference to the occlusion of veins and the effects on arterial circulation, there is considerable clinical material which indicates that veins may be deliberately occluded in order to improve arterial circulation. There is clinical evidence for this procedure. It is unlikely, therefore, that the arterial circulation would have been impaired for any considerable time after these veins had been thrombosed.

DR. Wood: I should like to hear what Dr. Smith thinks. How long will spasm last in the arteries with

a venous thrombosis?

DR. JOHN SMITH: I should think it would be temporary. DR. OLMSTED: I saw this patient on about the eighteenth day and my impression was that her foot was almost gangrenous.

Dr. Bulger: Yes, it became gangrenous and was amputated. That was left out of the history somehow.

DR. ALEXANDER: That is an important point. How high up?

Dr. Bulger: A little above the mid-thigh. I think we ought to mention the fact that venous thrombosis is common in acute infectious diseases such as typhoid. The patient did have a high cutaneous fever.

DR. ALEXANDER: But that developed later. Her fever was not very high when she came in. After the pulmonary accident she developed fever and leukocytosis. Dr. Massie, do you believe that this electrocardiogram is characteristic of posterior myocardial infarction?

DR. MASSIE: The changes could be a reflection of either pulmonary infarction or myocardial infarction. I cannot tell which of the two possibilities is best because we should have had a third tracing to substantiate the second tracing.

DR. ALEXANDER: Do you believe the signs are typical of pulmonary embolism?

DR. MASSIE: More so than of myocardial infarction. If she did have myocardial infarction, the possibility of a mural thrombus with emboli from that source should be mentioned. That does not explain the venous picture, however.

Dr. ALEXANDER: Myocardial infarction, if she had coronary occlusion, might be independent of the venous thrombi.

Dr. Massie: It could have been the result of vascular involvement.

Dr. Alexander: Are there further comments?

DR. ELSON: The acute occurrence of cyanosis and dyspnea, and the absence of pain, would be, to my mind, strong evidence in favor of pulmonary embolism, which in turn would be better explained on the basis of the venous thrombi.

Dr. Alexander: The fact that sanguinous fluid was recovered from the pleural cavity also suggests pulmonary embolism.

DR. CARL MOORE: The history mentions pain in the right upper quadrant. In the hospital it was stated that she held her abdomen rigid and that good palpation was therefore impossible. We are handicapped by not knowing more about the abdominal examination. I wonder if in subsequent examinations this difficulty disappeared?

DR. BULGER: On numerous later occasions the abdomen was very soft and the liver edge was palpable for about two inches. No masses were ever felt.

Dr. Elson: Since no one of these diagnoses can explain the whole clinical picture, I should like to propose a combination: carcinoma of the pancreas, plus paradoxical embolism as a result of intraventricular or intra-auricular septal defect.

DR. ALEXANDER: Dr. Wood, was gangrene present in any of the cases reported by Dr. Homans?

DR. WOOD: No.

DR. ALEXANDER: Do you believe that spasm could produce gangrene?

Dr. Wood: No.

Dr. ALEXANDER: Then she must have had arterial emboli?

DR. Wood: I think that one would have to assume that she did, at least in the leg.

DR. ALEXANDER: Is it possible to have a process as acute as this with diabetic gangrene? May she have had arteriosclerosis of the popliteal artery, which in a matter of a few days occluded the leg?

DR. OLMSTED: Yes.

DR. ALEXANDER: Are there further comments?

STUDENT: With carcinoma of the head of the pancreas, which is usually of the adenocarcinomatous type, there is frequently jaundice, and the absence of jaundice suggests that carcinoma is not in the head. Carcinoma of the body and tail together may occur without jaundice, and many of the signs and symptoms in this case suggest such a carcinoma. Before glycosuria is produced by carcinoma of the pancreas, at least seven eighths of the organ must be involved.

DR. Bulger: Because of the possibility of these being reflex spasms, the patient was given papaverine. This drug did not relieve them. Is that significant?

DR. Wood: Papaverine should do something to relieve spasm, but I am not sure that its failure to do so is a diagnostic test.

STUDENT: Does not the sedimentation rate suggest some disturbance of liver function?

DR. CARL MOORE: I think it indicates that there is some organic disease, and that is all.

DR. ALEXANDER: Are we agreed on any of these diagnoses? Thromboangiitis obliterans seems unlikely, does it not? Pelvic thromboses can hardly explain the entire picture and periarteritis nodosa seems unlikely. Coronary infarction, with a mural thrombus from which emboli may have lodged in arteries already sclerosed was suggested. Was there time enough for clot formation?

Dr. Massie: Yes.

DR. ALEXANDER: I am inclined to diagnose this as carcinoma of the body and tail of the pancreas and intense arterial sclerosis resulting from the diabetes. I doubt that vegetations on the heart will be found. There was evidently a pulmonary infarct.

CLINICAL DIAGNOSIS

Carcinoma of the pancreas, with multiple thromboses.

Diabetes mellitus.

DR. ALEXANDER'S DIAGNOSIS

Carcinoma of the body and tail of the pancreas. Advanced arteriosclerosis. Pulmonary infarction.

ANATOMIC DIAGNOSIS

Adenocarcinoma of the body and tail of the pancreas. Metastatic carcinoma in the peripancreatic, periportal, portahepatic and bronchopulmonary lymph nodes.

Metastatic carcinoma in the liver, lungs, pleura and adrenal.

Partially organized thrombi in the splenic vein and its tributaries.

Partially organized and recent thrombi in the small radicles of the portal vein and in the pulmonary arteries.

Partially organized thrombi in the branches of the renal arteries and in a branch of the superior mesenteric artery.

Multiple infarcts in the spleen, kidney and lungs.

PATHOLOGIC DISCUSSION

Dr. Margaret Smith: We have a carcinoma involving the body and tail of the pancreas, with metastases to lymph nodes, lung, pleura, liver, and a small metastasis in the adrenal. In the liver there were numerous small radicles of the portal vein which contained tumors. But these also contained thrombi, and in many of the small veins which did not contain tumor cells there were thrombi, some of which were partially organized. Hyperplasia of the islands and concentration of them in the scarred area caused the island change. This columnar hyperplasia has been described in diabetes. We found thrombi that were partly organized filling the splenic vein and its tributaries, and partly organized thrombi in the small radicles of the portal vein, and partly organized and recent thrombi in the pulmonary arteries.

There was a partly organized thrombus in one of the branches of the mesenteric artery, where there is not enough arteriosclerosis to have caused it. In the spleen and kidney there were multiple infarcts that were partially healed—probably several weeks old. In the spleen the thrombi were in the veins, but in the kidneys I was unable to find partly organized or fresh thrombi in any but one vein. There were many thrombi in the small arteries of the kidneys. There was no evidence of infection or minimal arteriosclerosis in these veins. In one of the infarcts of the spleen there were bacteria and an acute inflammatory reaction. I thought it might be an infection secondary to one of these infarcts.

I have no satisfactory explanation for the appearance of the thrombi in the arteries. We did not have the opportunity to examine the arms and legs. The subclavian vein contained no thrombus. I do not know what the report from surgical pathology on the amputated leg was. There was minimal arteriosclerosis in these medium sized vessels. There was nothing to account for the thrombi in the kidney and mesenteric artery, at any rate. There were no vegetations on the heart. We looked for them very carefully. The foramen ovale was patent, but well guarded. Another pos-sibility was that emboli might be found in the pulmonary artery and in veins elsewhere—that there might also be thrombi that had formed in the pulmonary veins-but the pulmonary veins showed no thrombi at all. I do not know what the explanation can be, unless it is on the basis of some change in the clotting mechanism.

DR. ALEXANDER: The specimen is being carefully dissected out in the surgical pathology department, but as yet we have no report on it. The amputation was high and the occlusion was much lower down. Dr. Bulger, did you think the artery looked small?

Dr. Bulger: It seemed rather small, but there was no clot in the artery, and it was markedly arteriosclerotic.

THE JOURNAL

of the

Missouri State Medical Association

623 Missouri Bldg. Telephone: Newstead 0404-05

Subscription - - - \$3.00 a year in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent.

JUNE, 1944

EDITORIALS



ARTHUR S. BRISTOW, M.D.

PRESIDENT-ELECT, MISSOURI STATE MEDICAL ASSOCIATION, 1945-1946.

At the Kansas City Session on April 25, 1944, the House of Delegates selected Dr. Arthur S. Bristow, Princeton, to serve as President-Elect for the coming year. Dr. Bristow will be installed as President at the 1945 Annual Session in St. Louis.

Dr. Bristow was born in Princeton, Missouri, March 16, 1892. He is the son of the late Dr. G. M. Bristow, a pioneer physician of North Missouri, who practiced there from 1877 until his death in 1943. Dr. Bristow received his preliminary education at the University of Missouri, his Bachelor of Science degree from the University of Chicago in 1915 and his Doctor of Medicine from Rush Medical College in 1917. He served his internship at the Presbyterian and Washington Boulevard hospitals, both in Chicago. During World War I he served as a First Lieutenant in the Medical Corps

and was assigned to base hospital work and did overseas duty. In 1920 he entered the practice of medicine at Princeton with his father and has been engaged in his profession there since that time.

He has served his profession the last eight years as Councilor, the last six years of which have been under the new dispensation of Councilor Districts. He has always been an active member of the Mercer County Medical Society and the organizational work of his profession. He has been active in civic affairs, is a past president of the Princeton Rotary Club and, since the beginning of the present war, he has served on the local Medical Advisory Board and is now a member of Selective Service Appeal Board No. 1, Group 1.

Dr. Bristow is steeped in the ideals of his profession, both by inheritance and actual service. His father practiced medicine in North Missouri for sixty-five years. His brother, Dr. Harry G. Bristow, is in St. Louis. His oldest son, Dr. Robert Bristow, is now serving his internship at the Kansas City General Hospital, and his son, Benjamin, is a Navy V-12 student in medical college at the present time.

Dr. Bristow has always been close to the problems of his profession and at the same time he has been aware of the needs of its organization. He has constantly kept apace with its progress. The members of the Association are to be congratulated upon this selection by the House of Delegates since there is a definite need for strong leadership in these turbulent times.

PREPAYMENT MEDICAL AND SURGICAL CARE PLAN

Missouri physicians have voted in favor of prepayment medical and surgical care for the people in the state. The Council and the House of Delegates at the Kansas City Annual Session unanimously adopted a plan proposed by a special committee appointed by the Council to work out such a proposal. The Council was authorized at the Session to appoint a committee to put the plan into operation immediately and the following committee was appointed by the Council: Dr. Carl F. Vohs, St. Louis, Chairman; Drs. Ira H. Lockwood, Kansas City; M. Pinson Neal, Columbia; H. B. Goodrich, Hannibal; F. L. Feierabend, Kansas City.

Medical, surgical, obstetric and fracture care of hospital cases only will be included. The committee will work out the cash benefits and the restrictions and limitations to be placed in the plan. It will be operated on a straight cash indemnity basis and will not interfere with the physician's normal fee. The policy is to state that the indemnification amount will not in any way relate to the physician's fee and the amount paid will be considered by the patient as part payment of the fee. The plan is to be available to all residents of the state and every physician will have opportunity to cooperate in the plan.

Kansas City has had a surgical care plan in operation for about a year and this will be changed to conform with the state one, which will be known as the Missouri Medical Service, Inc. The St. Louis Medical Society at a meeting on May 16 unanimously endorsed the state prepayment medical and surgical care plan.

The committee appointed to place the plan in operation is working rapidly and the plan will be in effect within a short time.

THE ANNUAL SESSION

The 87th Annual Session of the Missouri State Medical Association convened in Kansas City, April 23, 24 and 25. In spite of the many demands made on the time of physicians now, the number of younger men who are in service and, at the last minute, floods which

deranged rail service, the session was well attended, having a larger registration than the previous year. The scientific program was practical and each session was well attended.

Dr. A. W. McAlester, Jr., Kansas City, President, presided at the scientific sessions, and Dr. W. F. Francka, Hannibal, Speaker of the House of Delegates, presided at those sessions.

Lt. Col. Curtis H. Lohr, St. Louis, now serving overseas, was installed *in absentia* as President. Dr. Robert Mueller, St. Louis, read a message written by Col. Lohr.

Dr. A. W. Bristow, Princeton, was elected President-Elect and will be installed at the 1945 Session and will serve as President during that year. Drs. Robert Mueller, St. Louis; F. T. H'Doubler, Springfield, and W. L. Brandon, Poplar Bluff, were elected Vice Presidents. Dr. Robert Mueller, St. Louis, was selected by the Council to act in the absence of the President.

Delegates to the American Medical Association elected are Drs. A. R. McComas, Sturgeon, and W. L. Allee, Eldon, with Drs. M. Pinson Neal, Columbia, and W. A. Bloom, Fayette, alternates. Dr. E. J. Schisler, St. Louis, was elected Speaker of the House of Delegates and Dr. S. P. Howard, Jefferson City, Vice Speaker.

Dr. R. L. Thompson, St. Louis, was reelected Secretary-Editor; Dr. C. E. Hyndman, St. Louis, Treasurer; Dr. W. A. Bloom, Fayette, Chairman of the Council, and Dr. H. B. Goodrich, Hannibal, Vice Chairman of the Council. Councilors were elected to fill the expired terms of Councilors of odd numbered districts as follows: First District, Dr. H. E. Petersen, St. Joseph; Third District, Dr. J. W. Thompson, St. Louis; Fifth District, Dr. W. A. Bloom, Fayette; Seventh District, Dr. H. L. Mantz, Kansas City; Ninth District, Dr. E. C. Bohrer, West Plains.

St. Louis was selected for the 1945 Annual Session. Past Presidents were guests of honor at a banquet on Monday evening. Father Alphonse M. Schwitalla, S.J., Dean, St. Louis University School of Medicine, and Mr. John M. Pratt, Chicago, Administrator, National Physicians' Committee, were guest speakers and Dr. A. W. McAlester, Jr., Kansas City, presented the address of the President.

Col. John T. King, M.C., Washington, D. C., and Dr. Henry K. Ransom, Ann Arbor, Michigan, were guest speakers at the scientific sessions, and Dr. W. W. Bauer, Chicago, was a guest of the committees on Maternal Welfare and Infant Care at a luncheon meeting on Monday. Colonel King was also a guest of the Committee on Cardiac Diseases at a dinner on Sunday evening.

Secretaries and presidents of component societies were guests of the Association at a dinner on Sunday evening.

The Jackson County Medical Society proved itself an efficient host throughout the Session. A roster of members of Jackson County Medical Society who are in service was unveiled at a public meeting on the Malls of Kansas City General Hospital Sunday noon just prior to the opening of the Session.

NEWS NOTES

Dr. J. R. Amos, Springfield, spoke before the Kiwanis Club of Springfield on "Cancer Detection" on April 14.

St. Vincent Hospital, Monett, was formally dedicated at a ceremony on April 2.

Dr. C. C. Ault, Fulton, was elected president of the Rotary Club at Fulton at a meeting on April 5.

- Dr. J. E. Mitchell, Sedalia, was elected chief of staff of the John H. Bothwell Memorial Hospital, Sedalia on April 4. Other staff officers elected were Dr. D. P. Dyer, vice chief of staff; Dr. A. J. Campbell, secretary, and Dr. C. D. Osborne, treasurer.
- Lt. Col. Howard A. Rusk and Lt. Col. James Barrett Brown, St. Louis, received the eighth annual American Design Awards for outstanding contributions in the field of medical rehabilitation at a meeting in New York City April 20.
- Dr. Hester Wilson, Kansas City, has been elected vice president of the Board of Education of the Kansas City Public Schools.
- Dr. Wallis Smith, Springfield, has been elected president of the Springfield Chamber of Commerce.
- Dr. E. H. Magee, St. Joseph, addressed students of the Junior College in St. Joseph on April 16 on "The Why and How of Mental Examinations."
- Dr. J. A. Stocker, Mount Vernon, superintendent of the Missouri State Sanatorium for Tuberculosis, will become surgeon at St. John's Sanatorium, Springfield, Illinois, on June 1.

Drs. Norman Tobias and Andy Hall, St. Louis, were guests of the Marion County (Illinois) Medical Society on May 18, at Centralia, Illinois. Dr. Tobias spoke on "Office Treatment of Some Common Skin Diseases," and Dr. Hall on "Relationship of Urinary Obstruction to Urinary Infection."

Dr. L. J. Schofield, Warrensburg, was presented a gold service pin for fifty years of service in the Masonic Order at a program at Warrensburg the latter part of April.

Comdr. R. R. Myers, Kansas City, has been recommended for the Legion of Merit for activity in recent battles in the South Pacific.

RANDOM OBSERVATIONS

BY A ROVING REPORTER

Like all governmental figures today the report of the Army Dental Corps deals with astronomical quantities. Since Pearl Harbor the work of the dentists includes: 1,075,000 new dentures, 31,142,000 fillings, 56,000 bridges, 220,000 denture repairs and 3,235,000 prophylactic and pyorrhea treatments. Many boys who never saw the inside of a dentist's office are imbibing new ideas of health.

The alphabet has reached medicine. The Museum and Medical Arts Service of the Army Medical Museum is now the MAMAS. There is an old saying that if your initials spell a word, you will be rich and successful. It is coming true for the MAMAS. They are rich in material and successful in securing what they are sent to get.

It has been suggested that those who are responsible for lengthy verbose papers in medical journals might give some thought to the outstanding success of *Reader's Digest*. Certainly presentation of the facts and scientific accuracy should not be sacrificed. But, ask, do I use three words when one would do?

As a follow-up on my recent comments on the vitamania of the American people, the statements in the April issue of *Nutrition Review* seem appropriate. In a review under the title of "Vitamins and Physical Fitness," the concluding paragraph states, "It would appear that the evidence at hand indicates that supplementation of a 'normal diet' is without benefit in improving physical efficiency, assuming of course that the normal diet is adequate. No one denies that deficiency of any nutrient results sooner or later in physical deterioration, but how low the dietary intake of specific nutrients can be without evidence of physical deterioration and what the clinical syndrome of very early deficiency may be are still unsettled."

Useless occupations of busy men: medical examinations for draft boards. The Army itself carries out a thorough examination before induction. What is gained by a hurried and cursory physical by the civilian doctor who is already so busy he does not have time to see his family?

The annual report of the Royal Alexandra Hospital for Children, Sydney, N. S. W., contains a statement which looks to the future: "The Board and Hospital staff look forward to the day when blast and baffle walls and other structural work can be removed from the Hospital and allow the wards to resume their bright peace-time appearance and the patients to receive the maximum benefit from sunshine and fresh air." We in the zone of supply have little knowledge of what those in the zone of operations have gone through in the last few years.

One of the problems on the agenda for medicine of the future is industrial medicine. "Accidents kill more males between the ages of 3 and 38 than any other single cause . . . for every person killed, 50 are permanently disabled (this figure varies in different age groups) and about 200 are temporarily disabled. . . . Four million workers were killed or seriously injured as a result of accident during 1941 . . . the cost of these accidents as estimated by the National Safety Council amounts to \$4,000,000,000." (Dunbar in August 1943, issue of War Medicine.) Our concern is largely a matter of viewpoint. Here is a loss of life considerably in excess of that of war, but little attention is given to it.

Orchids for the month to the Josiah Macy, Jr., Foundation. This Foundation is reproducing and distributing to the medical officers of the armies and navies of the Allied Nations reprints of significant and important scientific papers. In the jungles of New Guinea, the desserts of North Africa and the plains of India, young men may thus retain some contact with research and the forward strides of civilian and military medicine.

BOOK REVIEWS

Internal Medicine in General Practice. By Robert Pratt McCombs, Lieutenant, Medical Corps, United States Naval Reserve; Recently Instructor in Internal Medicine for the Statewide Postgraduate Program of the Tennessee State Medical Association. On leave of absence from the Staffs of the Pennsylvania Hospital, the Abington Memorial Hospital and the Jefferson Medical College, Philadelphia. Illustrated. Philadelphia: W. B. Saunders Company. 1943. Price \$7.00.

This is the book for which practicing physicians and medical students have been waiting. Although there are several good textbooks available for the practitioner of medicine today, this new book will be very interesting and informative to those who in this busy time do not have the opportunity to read the more extensive literature.

There are many decided advantages in this text. The physician will find it valuable for refreshing his fundamental knowledge. The underlying pathologic physiology, accurate diagnoses with special reference to differential diagnoses are stressed.

It is written with such great clarity that problems like edema and acidosis are comprehensible to any average adult.

The chapters devoted to disorders of the heart, nutritional deficiencies and sulfonamide therapy are most enlightening. He includes practical diagnostic outlines, tables, illustrations and valuable chapter summaries.

In my judgment McComb's Internal Medicine is an extremely practical book for the general practitioner.

CLINICAL CARDIOLOGY With Special Reference to Bedside Diagnosis. By William Dressler, M.D., Attending Cardiologist, Israel Zion Hospital; Assistant Attending Physician, Brooklyn Hospital, New York. With 108 Illustrations. New York: Paul B. Hoeber, Inc. 1942. Price \$7.50.

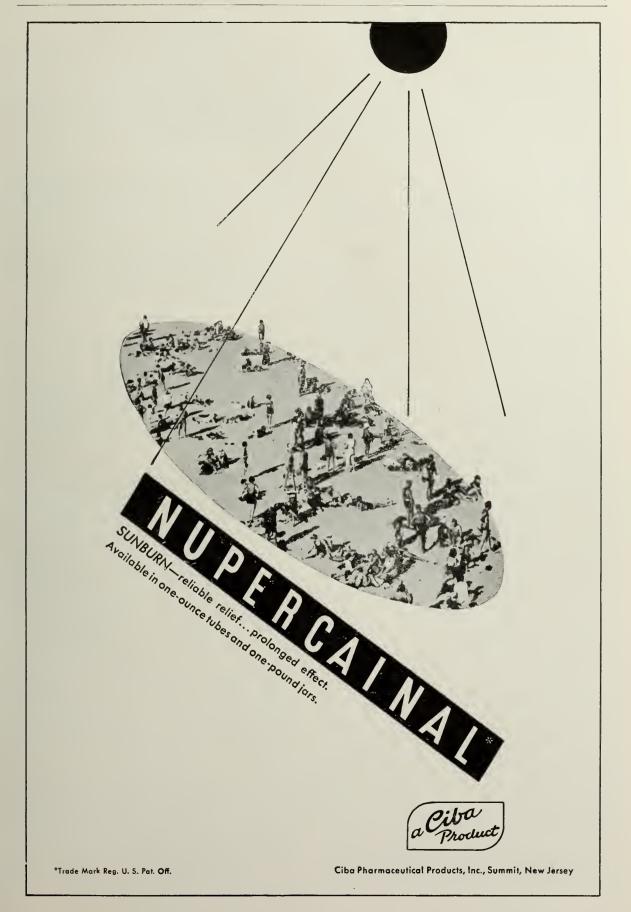
This recent text just submitted to the medical profession is one of the most outstanding books that has been written in some time concerning all phases of cardiology. The book is written in an interesting manner, is easy to understand and to interpret and at all times holds one's attention. It is also extremely easy to select any particular subject or topic and find it without reading several pages.

For the reader's sake the book is divided roughly into various sections. The first section is devoted entirely to methods of examination. It consists of a short introduction and then the usual review of the history and physical examination, electrocardiographic and roentgenologic examination. In the latter two divisions, all phases of electrocardiographic examination and roentgen-ray examination are taken into consideration. In the roentgen-ray examination there are some very interesting facts brought out which the average internist in particular does not recognize and also a goodly number of roentgen-ray men fail to comprehend as far as interpreting heart shadows. The author has done considerable experimental work along this line and all of his conclusions are verified by interesting physiologic experiments. The second part of the book takes into consideration the general pathology of the heart including the normal and abnormal physiology and the clinical manifestations of heart failure with their treatment. The author then reviews the various types of common phenomena that are seen in circulatory failure, gives the underlying physiologic mechanism of each and also the importance of clinical recognition and what it means to the examiner. In this section it is particularly noteworthy that on looking up specific references one can easily find them.

The third part takes into consideration special pathology, that is, the more common etiologic types of heart disease beginning first with rheumatic disease, bacterial endocarditis, cardiovascular syphilis, congenital heart disease and pericarditis; then hypertension along with arteriosclerosis and the heart in other acute infectious diseases are also touched upon. There is a considerable amount of time spent on myocardial infarction, angina pectoris and diseases of the myocardium in general. The importance of the heart in surgery, its relation to marriage and pregnancy and also to diseases of the respiratory system are dwelt upon in moderate length and again the interpretation is very adequate and interesting.

To this reviewer who has had the opportunity to examine several of the more recent cardiological texts, this by far is the most outstanding one that has been submitted to the medical profession in some time.

A. E. U.



INDEX TO ADVERTISERS

Borden Company 7 Camel Cigarettes 11 Ciba Pharmaceutical Products, Inc.Insert Cook County Graduate School of Medicine...... 32 Gradwohl School of Laboratory Technique...... 31 Lilly, Eli and Company...... 16 Lov-E Brassiere Company 40 Major Clinic Association 5 Medical Protective Company 31 National Association of Margarine Manufacturers.. 41 National Pathological Laboratory 32 Norbury Sanatorium 32 Parke, Davis & Company...... 4 Ralph Sanitarium 34 Searle, G. D., Company 8 Stokes Sanitarium 36 Wallace Sanitarium 26 Winthrop Chemical Company 9 World Insurance Company 34 Worrell, Dorothy 36

BOOKS RECEIVED

Nascent Endocrine Therapy. By John Franklin Ritter, M.D. Idaho: The Caxton Printers.

Handbook of Nutrition. A Symposium prepared under the Auspices of the Council on Foods and Nutrition of the American Medical Association. 1943. Chicago: American Medical Association. Price \$2.50.

The Jews and Medicine. Essays. By Harry Friedenwald, M.D., D.H.L. (Hon.), D.Sc. (Hon.), Professor Emeritus of Ophthalmology, University of Maryland. Volumes I and II. Baltimore: The Johns Hopkins Press. 1944. Price \$7.50.

Text-Book of Pathology. Edited by E. T. Bell, M.D., Professor of Pathology in the University of Minnesota, Minneapolis, Minn. Fifth Edition, Enlarged and Thoroughly Revised. Illustrated with 448 Engravings and 4 Colored Plates. Philadelphia: Lea and Febiger. 1944. Price \$9.50.

SULFONAMIDE THERAPY IN MEDICAL PRACTICE. By Frederick C. Smith, M.D., M.Sc. (Med.), F.A.P.S. Editor of *Philadelphia Medicine*, official organ of the Philadelphia County Medical Society; Editor of *The Medical World*; Lt. Col., Medical Reserve Corps, Army of the United States. Foreword by George Morris Piersol, B.S., M.D., Professor of Medicine, Graduate School of Medicine, University of Pennsylvania; Editor-in-Chief, The Cyclopedia of Medicine, Surgery and Specialties. Illustrated With Numerous Engravings, Graphs and Tables. Philadelphia: F. A. Davis Company. 1944.

Medical Physics. Editor-in-Chief Otto Glasser, Ph.D., Head, Department of Biophysics, Cleveland Clinic Foundation; Professor of Biophysics, Frank E. Bunts Educational Institute; Consulting Biophysicist, University Hospitals of Cleveland, Cleveland, Ohio. Associate Editors. Anatomy: Normand L. Hoerr, M.D., Ph.D.; Bacteriology: Otto Rahn, Ph.D.; Biometrics: Charles P. Winsor, Ph.D.; Biophysics: Otto Glasser, Ph.D.; Dermatology: George W. Binkley, M.D.; Hematology: Eric Ponder, M.D., D.Sc.; Medicine: Russell L. Laden, M.D.; Neurology: W. James Gardner, M.D.; Nuclear Physics: Robley D. Evans, Ph.D.; Ophthalmology: Albert D. Ruedemann, M.D.; Optics: W. B. Rayton, D.Sc.; Orthopedics: James A. Dickson, M.D.; Otolaryngology: Paul M. Moore, Jr., M.D.; Pathology: Harry Goldblatt, M.D., C.M.; Pediatrics: Norman C. Wetzel, M.D.; Photography: Leo C. Massopust; Physical Chemistry: Francis M. Whitacre, Ph.D.; Physical Therapy: Walter J. Zeiter, M.D.; Physics (Instruments and Methods): John G. Albright, Ph.D.; Physiology: Harold D. Green, M.D.; Radiology: Harry Hauser, M.D.; Surgery: Frederick E. Mautz, M.D.; Urology: Charles C. Higgins, M.D. Chicago: The Year Book Publishers. 1944. Price \$18.00.

Female Endocrinology. Including Sections on the Male. By Jacob Hoffman, A.B., M.D., Demonstrator in Gynecology, Jefferson Medical College; Pathologist in Gynecology, Jefferson Hospital; Formerly Research Fellow in Endocrinology and Director of the Endocrine Clinic, Gynecological Department, Jefferson Hospital, Philadelphia. Fully Illustrated Including Some in Colors. Philadelphia: W. B. Saunders Company. 1944. Price \$10.00.

THE JOURNAL

Missouri State Medical Association

The Official Organ of the State Association and Affiliated County Societies Issued Monthly under direction of the Publication Committee

COPYRIGHTED, 1944, BY MISSOURI STATE MEDICAL ASSOCIATION. ALL RIGHTS RESERVED.

VOLUME 41

JULY, 1944

Number 7

RALPH L. THOMPSON, M.D., Editor HELEN PENN, Assistant Editor 623 Missouri Bldg., St. Louis, Mo. Telephone, Newstead 0404-05

Publication | RALPH L. THOMPSON, M.D., Chairman | M. H. SHELBY, M.D. | R. C. HAYNES, M.D. | VINCENT T. WILLIAMS, M.D.

ACUTE COR PULMONALE COMPLICATING TULAREMIA

(REPORT OF A CASE)

J. A. OSSMAN, M.D.,

AND

J. DE VOINE GUYOT, M.D.

JEFFERSON CITY, MO.

Acute cor pulmonale is no longer a rarity and is diagnosed with a fair degree of regularity, but as far as could be ascertained this is the first instance in which it has occurred as a complication of tularemia.*

Case Record.—Mrs. J. W. S., female, farmwife, entered St. Mary's Hospital November 7, 1943, by ambulance with a provisional diagnosis of tularemia (septic type) and coronary disease.

Present History.—On October 19, 1943, while she was dressing a chicken she stuck her right thumb with a bone causing a small puncture wound on the lateral surface near the nail base. Within thirty-six hours she felt extremely ill, had a severe chill followed by rise in temperature and accompanied by generalized aching. A physician was summoned who prescribed for her. She remained under his care for several days during which time she had almost daily chills with high temperature. The thumb ached some and a small ulcer appeared that did not heal and discharged a small amount of seropurulent material. An agglutination test for tularemia was made at that time and according to the patient was found to be negative.

The patient's condition grew worse rapidly. Chills and septic temperature continued; she lost weight rapidly and became very apprehensive about her condition, almost to the point of acute nervous collapse. She was seen by one of us (J. A. O.) at his office, November 5, 1943. Temperature was 101 F. at 2:00 p. m. After thorough physical examination, a tentative diagnosis of tularemia was made, blood was drawn for agglutina-tion tests and she was placed on 15 grains of sulfathiazole four times a day and allowed to return home as she

refused hospitalization at that time.

On November 6 an emergency call was made to her home as she was very ill and had a terrible pain in her chest. The history given at that time was typical of an anginal attack with characteristic pain radiation and feeling of impending death. The pain had subsided by the time the physician arrived. She was given amino-

phylline by mouth and dilaudid subcutaneously and she agreed to enter the hospital via ambulance the following morning.

On admission to the hospital, November 7, in the morning, her condition seemed to be much improved. It was noted in her past history that she had had the usual childhood diseases. Herniotomy had been performed eight years previously. She had had nine pregnancies resulting in the birth of eight living children and one miscarriage. Her menopause occurred at 49 years and she had enjoyed very good health since. The clinical picture at admission time was very much the same as has already been described. Examination of the lungs revealed a rather severe bronchitis with suspicion of pneumonitis in both lungs. The pulse was regular, the heart was normal as to rate and rhythm. Blood pressure was 120/80. There were no murmurs or friction rubs of any kind audible in the heart. At 2:30 p. m., the patient had grown much worse and was complaining of terrible pain in the chest. Dilaudid was given for pain. The patient was in shock, the skin cold and clammy, lips and fingernails cyanotic. The heart was rapid and irregular, sounds were of fair volume and much pulsation was noted in the veins of the neck. Auscultation over the heart areas showed loud, irregular, grating noises or friction rubs especially noticeable over the base of the heart. A diagnosis of acute coronary occlusion with cardiac infarction was made. Because of the seriousness of the patient's condition and a desire for an immediate electrocardiographic tracing the relatives were asked for permission to have consultation with Dr. J. De Voine Guyot. His findings, graphs and discussion of the case follow:

On November 8 the Missouri State Board of Health Laboratories reported a positive agglutination for tularemia in a dilution of 1 to 80. Following recovery from her acute cardiac episode the patient's condition gradually improved. The septic symptoms gradually disappeared. The ulcer which had been treated with sulfanilamide powder dressings gradually healed. There had never been any enlargement of the epitrochlear or

axillary glands in the involved arm.

Laboratory Examination.—Urinalysis: catherterized specimen was yellow, clear, acid, epithelium cells present. There were 10,200 white cells, 4,200,000 red blood cells, hemoglobin 70, color index 9, segmented cells 7, stabs 6, lymphocytes 54, coagulation time 2 minutes, Kahn test negative, reaction for tularemia positive in dilution of 1 to 80.

Prior to that morning, on careful auscultation, no sound that could be called a friction sound had been heard and then suddenly there appeared a very loud to and fro friction.

The woman was lying in bed rather stuporous as the result of the dilaudid which had been given a short time previously, but it was easy to see that she was quite

^{*}W. F. Prior & Company after a careful search have reported that they can find no recorded case.

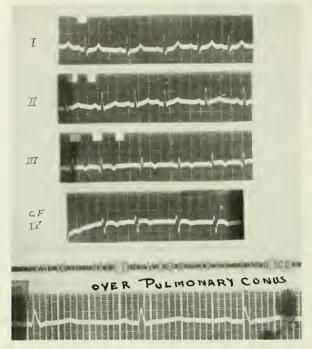


Fig. 1. Electrocardiogram made about eight hours after the attack which seemed to be coronary occlusion. The phonogram is made over the third intercostal space to the left of the sternum.

ill and she was apprehensive, seeming to be conscious that something serious had occurred.

On close questioning it was brought out that she had had on several occasions, especially in cold weather and on walking up grade, substernal discomfort of an oppressing character which might have been attacks of angina, but they were never incapacitating. The entire illness could easily be said to have dated from the chill initiating the present attack.

On inspection the cardiac impulse was rather tumultuous and there was noticeable in the region of the conus some degree of heaving. On palpation the cardiac impulse was overactive, raising the hand; there was a perceptible thrill-like feeling over the conus.

On auscultation there was an extremely loud and almost continuous grating sound which was heard over a wide area, but obviously much more pronounced over the pulmonary conus. This is well shown in the phonogram made over the pulmonary conus (figure 1).

The electrocardiogram shown in figure 1 looks much like a coronary occlusion of the Q₃ T₃ type, but the fourth lead at once discredits that diagnosis because of changes which do not occur in a basal type of occlusion.

A diagnosis of acute cor pulmonale was made and it was predicted that there would be a rapid return of the complexes to the isoelectric line. The electrocardiogram made thirty-six hours after the first, shown in figure 2, bore out this prediction. Attention was called to the fact that the rub seemed to be over the conus. This is attributed by White and others to the enlargement of the conus, and its close proximity to the anterior chest wall ¹

Several other factors contributed to the diagnosis: (1) While the pain was of about the same severity as that which would have been felt in occlusion, it lacked the usual radiation, (2) the limitation of the rub to the area of the conus, (3) instead of the usual rather flabby character of cardiac impulse there was a wild and heaving impulse. None of these features could be said to rule against occlusion, but they are unusual and tend to make one doubt occlusion.

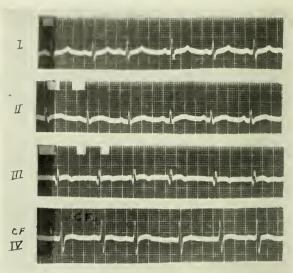


Fig. 2. Tracing made thirty six hours after that in figure 1.

The majority of cases of acute cor pulmonale are diagnosed as coronary occlusion, and it is not until after the electrocardiogram is made and shows the rapid reversion to normal that the true diagnosis is realized. Then in retrospect all the events become clear.

The day before the patient left the hospital there was a practically normal graph. A tracing was not obtained the next morning because the patient went home unexpectedly the same night. However, a tracing obtained January 25 shows the condition as it appeared in the cardioscope at the time the patient left the hospital.

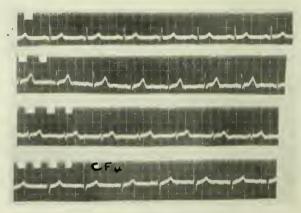


Fig. 3. Taken January 25, 1944. It has the same form of complexes noted in the cardioscope November 15, 1943.

1. White Paul D.: Heart Disease, New York, Macmillan Co., ed. 2, p. 334.

234 Madison Street. 208½ E. High Street.

From his experience with animals, and with a few patients treated with suspensions of sulfanilamide or sulfathiazole in soybean oil, D. Murray Angevine, M.D., Wilmington, Del., reports in the current issue of *War Medicine* that "I believe that this method of therapy (treatment) deserves a further trial in chronic osteomyelitis (inflammation of a bone) and in other types of infected wounds."

THE IOURNAL

of the

Missouri State Medical Association

623 Missouri Bldg. Telephone: Newstead 0404-05

Subscription \$3.00 a year in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent.

JULY, 1944

EDITORIALS.

FIFTH WAR BOND DRIVE

The Fifth War Bond Drive extends through July 8. Physicians have made an enormous contribution to the war with approximately a third in service and two thirds caring for the medical needs of civilians. The Treasury Department has asked that it may have further data to add to this record of contribution to the war by physicians. The Department would like to know the amount of war bonds bought in the Fifth War Bond Drive, not by any individual physician, but by the profession as a whole. A blank appears on advertising page 22 to show the amount of bonds bought. This is not to be signed. Members are urged to fill in the blank or notify the Association office by unsigned postcard of the amount of bonds bought.

ANNUAL SESSION MINUTES

Because of the great use of paper in war industries, the Government has stipulated the amount of paper to be used by each publication. THE JOURNAL of the Missouri State Medical Association is allowed a stipulated number of pages during the year. In order to present the minutes of the Annual Session to members in the July Journal, as is customary, it has been necessary to curtail all other material in the issue. The entire proceedings of the Session are presented in this issue.

NEWS NOTES

Dr. C. A. Brasher, Mount Vernon, has been named acting superintendent of the Missouri State Sanatorium, Mount Vernon.

Mr. Tom R. O'Brien, St. Louis, formerly with the Medical-Dental Service Bureau, began his duties as Executive Secretary of the Missouri State Medical Association on June 1. Mr. O'Brien will continue as executive secretary of the Community Health League.

Dr. Eugene C. Black, Kansas City, was elected president of the Association Railway and Industrial Physicians and Surgeons of Kansas City at a meeting on May 8. Other officers were Dr. Carl Brust, vice president; Drs. M. W. Pickard, J. E. Castles, F. L. Feierabend, V. T. Williams, members of the executive committee; Dr. E. P. Heller, delegate to the American Association.

MISSOURI STATE MEDICAL ASSOCIATION

Eighty-Seventh Annual Session

Kansas City

April 23, 24, 25, 1944

MINUTES OF THE HOUSE OF DELEGATES

Municipal Auditorium

Sunday Session

The first meeting of the House of Delegates of the Eighty-seventh Annual Session of the Missouri State Medical Association was called to order at 2:00 p.m. in the Little Theatre, Municipal Auditorium, Kansas City, with Dr. W. F. Francka, Hannibal, Speaker of the House of Delegates, presiding.

A quorum was reported present.
Officers, Councilors and Delegates who were present during the Annual Session follow:

Omcers	
PresidentA. W. McAlester, Jr.,	
Kanasa Cita	
Vice PresidentDudley A. Robnett, Columb	oia
Vice PresidentBuford G. Hamilton,	
Kånsas City	
Vice President J. I. Byrne, St. Joseph	
Treasurer	
Secretary-EditorR. L. Thompson, St. Louis	
Councilors	
1st DistrictA. S. Bristow, Princeton	
2nd DistrictH. B. Goodrich, Hannibal	
3rd DistrictJoseph C. Peden, St. Louis	
4th District	
5th District W A Bloom Favette	
6th District	
7th District H. L. Mantz Kansas City	
8th DistrictWallis Smith, Springfield	
9th District F C Robrer West Plains	
9th District. E. C. Bohrer, West Plains 10th District. Paul Baldwin, Kennett	
Delegates	
AudrainJ. Frank Jolley, Mexico	
Barry-Lawrence-Stone. Kenneth Glover, Mount	
Vernon	
Barry-Lawrence-StoneH. L. Kerr, Crane	
Barry-Lawrence-Stone W. M. West, Monett	
Botos C A Luck In Dealer	
Bates C. A. Lusk, Jr., Butler Boone A. R. McComas, Sturgeon Buchanan M. E. Grimes, St. Joseph	
Puchanan M. F. G.; Sturgeon	
Buchanan I. B. B. Grimes, St. Joseph	
Buchanan L. P. Forgrave, St. Joseph	
Buchanan A. B. McGlothlan,	
St. Joseph ButlerF. L. Kneibert, Popular Blu Caldwell-LivingstonG. W. Carpenter, Chillicothe	~
Call Call Control of the Call Call Call Call Call Call Call Cal	ıtt
Caldwell-LivingstonG. W. Carpenter, Chillicothe	
CallawayJ. J. Blasko, Fulton	
Cape GirardeauR. A. Ritter, Cape Girardeau	u
Carroll E. Bales, Carrollton	
Callaway	
Cass D. S. Long, Harrisonville Chariton J. W. Hardy, Sumner	
Chariton J. W. Hardy, Sumner	
Christian	
Christian. C. A. Spears, Billings Clay. E. C. Robichaux,	
Excelsior Springs	
Cole S P Howard Jefforson City	
Cooper. W. H. Ziegler, Boonville Dallas-Hickory-Polk. G. C. Plummer, Buffalo	
Dallas-Hickory-Polk G C Plummer Buffele	
Dallas-Hickory-Polk D. C. McCraw Polision	
Dallas-Hickory-Polk D. C. McCraw, Bolivar Dunklin	
Franklin F. G. Mays, Washington	
Greene Palant Vi days, Washington	
Greene. Robert Vinyard, Springfield Greene. W. S. Sewell, Springfield Greene. L. F. Heimburger, Springfiel Harrison. W. L. Warren, Gilman City	
Greens W. S. Sewell, Springfield	
Heimburger, Springfie	ld
narrison	

Harrison..... W. L. Warren, Gilman City

194	
TT	. R. S. Hollingsworth, Clinton
Henry Toward Toward	C F Calliban Willow Springs
Howell-Oregon-Texas	. C. F. Callihan, Willow Springs . C. W. Cooper, Thayer
Howell-Oregon-Texas	. C. W. Cooper, Thayer
Jackson	Hugh L. Dwyer, Kansas City
Jackson	H. L. Mantz, Kansas City C. E. Virden, Kansas City
Jackson	. C. E. Virden, Kansas City
Jackson	H. M. Gilkey, Kansas City
Jackson	M. B. Simpson, Kansas City H. V. Zuber, Kansas City
Jackson	. H. V. Zuber, Kansas City
Jackson	A. N. Altringer, Kansas City
Jackson	. William M. Ketcham,
	Kansas City
Jackson	Kansas City James R. McVay, Kansas City
Jackson	. H. M. Roberts, Kansas City
Lackson	Druery R. Thorn, Kansas City
Jackson	Oliver S. Gilliland,
buckson	Kansas City
Jasper	
Jasper	R M Ismes Ionlin
T -fot-	I M Carner Higginsville
Larayette	.L. M. Garner, Higginsville .P. W. Jennings, Canton
Lewis-Clark-Scotland	F. Cifilian Mamphia
Lewis-Clark-Scotland	. E. Gillian, Mempins
Lincoln	Jos. C. Creech, Troy
Macon	.Howard S. Miller, Macon
Marion-Ralls	.W. F. Francka, Hannibal
Mercer	T. S. Duff, Gainsville
Miller	. W. L. Allee, Eldon
Monifeau	J. P. Burke, Jr., California
Morgan	.J. L. Washburn, Versailles
New Madrid	J. L. Washburn, Versailles B. J. Allenstein, New Madrid
Newton	.D. A. Campbell, Neosho
Nodaway-Atchison-	
	. H. C. Bauman, Fairfax
Nodaway-Atchison-	
Gentry-Worth	. Charles D. Humberd, Barnard
Nodaway-Atchison-	
Gentry-Worth	. S. E. Simpson, Stanberry
Nodaway-Atchison-	. 2. 2. 2
Gentry-Worth	. P. J. Ross, Grant City
North Central-	. 1 . 0 . 10000, Grant City
A doin	Goorge Grim Kirksville
Callinan	. George Grim, Kirksville .W. Herington, Green City .J. B. Luten, Caruthersville
Danie	I P Lutan Courthousille
Pemiscot	J. B. Luten, Caruthersville
Pettis	A. J. Campbell, Sedalia
Pike	.R. L. Andrae, Louisiana .A. J. Crider, Dixon
Pulaski	.A. J. Crider, Dixon
Randolph-Monroe	.F. L. McCormick, Moberly
Ray	. L. D. Greene, Richmond
	.B. L. Neubeiser, St. Charles
St. Francois-Iron-	
Madison-Washington-	
Reynolds	.F. Welebir, Bonne Terre
St. Francois-Iron-	
Madison-Washington-	
	.B. M. Bull, Ironton
St. Francois-Iron-	
Madison-Washington-	
Reynolds	.H. Barron, Fredericktown
St. Francois-Iron-	
Madison-Washington-	
	. A. F. Bugg, Ellington
Ste. Genevieve	. J. A. Wilkins, St. Marvs
St Louis	O W Koch St Louis
St. Louis	. J. A. Wilkins, St. Marys . O. W. Koch, St. Louis . F. L. Finley, Overland
St. Louis	A W Westrup
Dt. Louis	Webster Groves
St Louis	E. R. Brown, University City
St Louis	R A Walthan Overland
St. Louis	. R. A. Walther, Overland
St. Louis City	Llewellyn Sale, St. Louis
St. Louis City	F. G. Pernoud, St. Louis
St. Louis City	Glover H. Copher, St. Louis
St. Louis City	Armand D. Fries, St. Louis
St. Louis City	J. W. Thompson, St. Louis
St. Louis City	. Oliver B. Zeinert, St. Louis
St. Louis City	C. E. Hyndman, St. Louis
St. Louis City	Mary E Morris St Louis
C4 T!- C!4	indig 2. morris, st. Bours
St. Louis City	Carl F. Vohs, St. Louis
St. Louis City	C. E. Hyndman, St. Louis Mary E. Morris, St. Louis Carl F. Vohs, St. Louis C. L. Klenk, St. Louis

St. Louis CityG. V. Stryker, St. Louis	
St. Louis CityA. J. Raemdonck, St. Loui	S
St. Louis CityJ. Grindon, Jr., St. Louis	
St. Louis CityTheo. H. Hanser, St. Louis	
St. Louis City	
St. Louis CityNeil S. Moore, St. Louis	
St. Louis City Edwin C. Ernst, St. Louis	
SalineR. C. Haynes, Marshall	
Scott W. O. Finney, Chaffee	
Shelby D. L. Harlan, Clarence	
Vernon-Cedar	
Webster	
Marshfield	

Wright-Douglas.....R. A. Ryan, Mountain Grove Wright-Douglas.....M. C. Gentry, Ava

The reading of the minutes of the previous meeting was dispensed with and they were adopted as printed in The Journal.

The President, Dr. A. W. McAlester, Jr., Kansas City, read his message and recommendations as follows:

PRESIDENT'S MESSAGE AND RECOMMENDATIONS

I want to thank the House of Delegates for the distinction and honor they have placed upon me. The splendid organized set-up of the Missouri State Medical Association has relieved the office of the President of many heavy responsibilities, and the policies of the House of Delegates are carried out through the year with efficiency. I want to assure you of my loyalty to each of you as well as my never faltering faith in the destiny of my profession and its service to mankind.

Socrates thought that if all our misfortunes were laid in one common heap, whence everyone must take an equal part, most persons would be contented to take his own and depart. But for the medical profession this is not true. We daily listen to the misfortunes and ills of the afflicted and aid them in bearing them, as well as the affliction of strife and death and destruction. We are proud of the service of our fellows in the Armed Forces, and the way in which they have met the test. The results of their service speak for them much better than any praise I might bestow. The first medical officer to make the supreme sacrifice in the last world war was William T. Fitz-simmons, of Kansas City; and the first one in this war to die in action as far as we know is Andrew H. Panettiere, of St. Joseph, Missouri, formerly a member of Jackson County Medical Society.

In the early part of this year, Mr. Raymond Mc-Intyre, our new full time Executive Secretary volunteered for service in the Navy, and is now in the Service. Dr. Thompson took upon himself the duties of the Secretary, and Miss Penn has as faithfully as always shouldered the responsibilities of the office. Of the faithful in our organization, Dr. Thompson is the master. We are eternally grateful to Dr. Thompson and Miss Penn.

The next few years will be the most trying in our history. The Council appointed a Committee to cooperate in every way in formulating the new Constitution for Missouri. In only one instance was this necessary, and that was when Proposal 340, dealing with religious freedom came up—the Christian Scientists got inserted in this section the words, "right to rely upon prayer or spiritual means for mental or physical healing," which wording was merely an enabling act inserted in the Constitution. Mr. Homer Berger wrote the restricting clause, and this was approved on the floor. This amendment was offered by Mr. Dameron of Farmington, and then the Christian Scientists' amendment was stricken from the proposal. Mr. Dameron was assisted by Mr. V. E. Phillips of Kansas City, and Doctor F. L. McCluer of Fulton. The Constitution is no place for a license. The State Board of Health and the Legislature should

be free to function for the benefit of the public health. Mr. O'Brien and the Community Health League deserve our thanks. Every physician as well as those interested in community health should give this or-

ganization unstinted support.

The next matter I wish to speak of is the Committee on Postwar Planning. This is not just another Committee, but rather what might be called a Master Committee, and having no precedent, its function no doubt will overlap other committees. They have had several meetings and consultations with other committees, as well as with such organizations as the State Dental Association and the State Hospital Association.

This Committee is composed of Dr. M. Pinson Neal, Columbia, representing education; Dr. Robert Mueller, past president of the St. Louis Medical Society, and head of Procurement and Assignment; Dr. Ira H. Lockwood, past president of the Jackson County Medical Society and a member of the State Board of Health; associate advisers, the Delegates to the A. M. A.; Dr. James R. McVay, regional member of the new council on Medical Service of the A. M. A. which will closely tie in with our Committee and its efforts with that of the A. M. A. All have faithfully attended the sessions of the Committee.

I am asking that the House of Delegates authorize that this Committee be continued intact for the duration. The reason is self-evident. And that each delegate take back to each county an understanding of its

purposes and recommendation.

Before Pearl Harbor there was a shortage of doctors of close to 800 in this state, and the Armed Services have depleted us more than double this. Dr. Mueller may give you the exact figures to date. There is not one doctor left out-state that is available for military service. Missouri has scraped the bottom of the barrel, and the officers of both the Navy and the Army have given praise to Dr. Mueller and Missouri for the splendid record.

You will note that there are in Missouri 72 counties with a population of over a million people without adequate medical service. For instance, in Knox County there are 3 physicians, aged 60, 64, and 84. Douglas County has one physician under 65. In Carter County one is 75; one a woman, and one under 70, and so on down the line. There are 877 in Missouri past 70. And

death takes no holidays.

The situation in this state is so crucial that we are urging that the School of Medicine of the State University resume the graduation of doctors. It was the chief reason for the resolution passed by the House of Delegates at the last session, and the reason for the Council to appear before the Appropriation Committee of the State Legislation, after which that Committee approved the budget, and did so even after the University allotment had been completed. Had not the officials at Columbia reversed the previously reported action and approved this, the matter would have been closed. The appropriation was lost by only one vote when it came on the floor. Considerable correspondence has taken place and the Council has appointed a special committee to deal with this.

On motion, duly seconded, the message was received. The Speaker appointed the following reference

committees:

Reference Committee on Amendments to Constitution and By-Laws

Morris B. Simpson, Kansas City, Chairman. Neil S. Moore, St. Louis Frank G. Mays, Washington.

Reference Committee on Resolutions

W. S. Sewell, Springfield, Chairman.Carl F. Vohs, St. Louis.Oliver S. Gilliland, Kansas City.

Reference Committee on Miscellaneous Affairs

C. Braxton Davis, Nevada, Chairman. James R. McVay, Kansas City. Armand D. Fries, St. Louis.

Reference Committee on Medical Education and Public Welfare

Oliver B. Zeinert, St. Louis, Chairman. R. C. Haynes, Marshall. R. M. James, Joplin.

Dr. Herbert L. Mantz, Kansas City, Chairman of the General Committee on Arrangements, and Dr. Morris B. Simpson, Kansas City, Chairman of the Local Committee on Arrangements, made announcements concerning the Annual Session.

The report of the Association office follows:

ASSOCIATION REPORT

Much of the activity of the Association office is reflected in the reports of committees as the office has attempted more than ever to assist committees since physicians forming these are having greater demands placed on them than in usual times.

The Order of Business of the House of Delegates is printed with reports this year. It is customarily published in The Journal prior to the Session but space would not permit it to go in The Journal and it is given here that Delegates may know the order of

business prior to the time of the Session.

The paper shortage in the country is evidenced in the size of The Journal. The Journal must remain within a Government-placed stipulation on amount of paper used. At the same time advertising has increased and it has been difficult to publish a balanced journal. While paper costs and printing cost have increased, The Journal has paid for itself during the last year. However, costs probably will increase further during the coming year.

The office has cooperated with Councilors in reactivating several county societies which had been

inactive for a number of years.

The Executive Secretary, Mr. Raymond McIntyre, entered the Navy in February with a commission as Lieutenant (j.g.).

The Nominating Committee, which is appointed by the President from the House of Delegates, must sub-

mit nominations for the following offices:

Three Vice Presidents to fill the vacancies created by the expirations of the terms of Drs. Dudley A. Robnett, Columbia; Buford G. Hamilton, Kansas City; J. I. Byrne, St. Joseph. Two Delegates and corresponding Alternates to the American Medical Association to fill the vacancies created by the expiration of the terms of Dr. A. R. McComas, Sturgeon, Alternate, Dr. J. E. Stowers, Kansas City, and Dr. W. L. Allee, Eldon, Alternate, Dr. A. S. Bristow, Princeton.

Honor members eligible for Affiliate Fellowship will

be reported to the House of Delegates.

The terms (two years) of the Councilors of the oddnumbered districts expire this year: Drs. A. S. Bristow, Princeton, First District; Joseph C. Peden, St. Louis, Third District; W. A. Bloom, Fayette, Fifth District; Herbert L. Mantz, Kansas City, Seventh District; E. C. Bohrer, West Plains, Ninth District. Delegates from these districts are required by the Constitution to meet on the morning of the third day and elect the Councilor for their district. The election must be certified to the House of Delegates on a prescribed form which will be furnished.

The Session will convene for two and a half days, beginning Sunday afternoon and closing Tuesday evening. The first meeting of the House of Delegates will be on Sunday, April 23. There will be no re-

.16

.50

cessed session of the House and all new business will be presented at the first session of the House. The second session of the House will be held at 2:00

p. m., Tuesday, April 25.

The commercial exhibits are more extensive this year and the Association office requests that Delegates and members view these exhibits. Future exhibits depend on the number of physicians contacted during a Session.

The Committee on Scientific Work has prepared an excellent, well rounded program for the Session. The program appeared in the April issue of THE JOURNAL.

The Annual Banquet in honor of Past Presidents will be held Monday evening, April 24, in the Ball-room, Hotel Muehlebach. All members, members of the Woman's Auxiliary, and their guests, are invited

Status of Membership

Number of members, January 1, 19433,283	
New members	
Reinstated 14	
Total3,433	
Dropped 39	
Deceased 79	
Transferred	
Total January 1, 1944	
Of this total 272 are Honor Members.	
On motion, duly seconded, the report was accepted.	

The report of the Treasurer, Dr. C. E. Hyndman, St. Louis, follows:

REPORT OF THE TREASURER

STATEMENT OF CASH RECEIPTS AND DISB	IIDGEMENTS
January 1 to March 31, 1944	
Particulars	Amount
Cash Balance December 31, 1943	410.556.02
	\$19,556.05
Receipts	
Members' Dues and Journal	
Subscriptions \$19,002	2.50
Annual Session Exhibit Space 1,261	1.00
JOURNAL Subscriptions—	
	2.00
JOURNAL Advertising Space 2,905	5.88
Rental—Subtenant	0.01
Donations from Honor	
Members	3.00
Refund of Advances for	
Traveling Expense 428	3.62
Refund of Advances for	
Councilors' Expense 55	5.62 24,028.63
Total Cash to be Accounted For	\$43,584.66
Disbursements	
Officers' Salaries \$ 1,150	0.00
Office Salaries 1 941	25
Office Rent and Light	7.15
Postage	7.26
Stationery, Printing and	
Office Supplies 164	.89
Telephone and Telegraph 186	.15
Printing The JOURNAL 2.072	2.29
Express 24	1.74
Insurance	.64
Meetings:	
Annual Session \$ 244.39	
Committees and	
Conferences 1,037.67	
Councilors' Expense 191.25 Council Expense 275.11	
Council Expense 275.11	
Postgraduate	
Instruction 40.00 1,788	3.42
Dues Refunded 5	5.50
Refund to Exhibitor	
General Expense 101	.27

Total Disbursements	8,158
Cash Balance March 31, 1944	\$35,426
Represented by: Mercantile-Commerce Bank and	
Trust Company account \$34,393.95 Mercantile-Commerce National	5
Bank account 1,007.55	5
Petty Cash Fund)
Total \$35,426.50)

On motion, duly seconded, the report was referred to the Council

Dr. L. R. Woodward, Mason City, Iowa, President of the Iowa State Medical Association, addressed the House of Delegates briefly.

The report of the Committee on Scientific Work, Dr. Harry C. Lapp, Kansas City, Chairman, follows:

REPORT OF THE COMMITTEE ON SCIENTIFIC WORK

The report of the Committee on Scientific Work is embodied in the program which appeared in the April issue of The Journal. The time for scientific work is increased a half day this year. The Committee feels that a practical and valuable program has been arranged and it is hoped that members will gain from the presentations at the Session.

HARRY C. LAPP, Chairman, RALPH A. KINSELLA. NATHAN A. WOMACK.

On motion, duly seconded, the report was accepted. The report of the Committee on Postgraduate Course, Dr. C. H. Neilson, St. Louis, Chairman, follows:

REPORT OF THE COMMITTEE ON POST-GRADUATE COURSE

Through cooperation of the Committee on Postgraduate Course with the State Board of Health most members in the state have had the opportunity of hearing Dr. Percy S. Pelouze, former Associate Professor of Urology of the University of Pennsylvania School of Medicine, now serving as Special Consultant in Gonorrheal Control for the U. S. Public Health Service, speak on "Gonorrhea Control Today." The Committee assisted by the State Board of Health and the Committee on Control of Venereal Disease arranged an itinerary for Dr. Pelouze to make him available to the greatest number of physicians. His time in Missouri would not allow him to appear before each component society and an attempt was made to plan his talks so that they were accessible to the most physicians. He presented twenty-one addresses to component societies.

The routine functioning of the Committee has been light. There have been few requests for speakers. Physicians have been sufficiently busy during the last year that probably societies have not met as frequently and it has been more difficult to find men who could give up the time to make the trips to present talks. There have been two Councilor District meetings for which the Committee furnished speakers and a few speakers have been sent to county medical society meetings. The Committee has not failed to comply with

the requests that have been made.

C. H. Neilson, Chairman, M. PINSON NEAL, G. T. BLOOMER. RALPH E. DUNCAN, GUY D. CALLAWAY.

On motion, duly seconded, the report was accepted. The report of the Committee on Publication, Dr. Ralph L. Thompson, St. Louis, Chairman, follows:

REPORT OF THE COMMITTEE ON PUBLICATION

January 1, 1943, to January 1, 1944

The 40th volume of THE JOURNAL was completed with the December issue. During 1943 there were published in THE JOURNAL fifty original articles, twentyfour case reports, four special articles, sixty abstracts and digests, thirty-eight editorials, one hundred four news items, thirteen organization activities, one article from the State Board of Health, twenty-seven miscellaneous articles, seventy-six obituaries, two Councilor District proceedings, thirty-four society proceedings, three Woman's Auxiliary articles, twelve "Incidentally" columns, four correspondence, seventy-three book reviews, seventy-four books received notices. There were 390 pages of reading material and 442 pages of advertising. The books received for review were distributed to medical libraries in the state.

Advertising in The Journal from January 1, 1943, to January 1, 1944, earned \$13,096.99, with \$623.02 to be collected totaling \$13,720.01. Subscriptions of nonmembers amounted to \$79.03, making \$13,799.04 actually earned by The JOURNAL. The cost of production of THE JOURNAL (printing and illustrations) was \$8,-

120.74.

RALPH L. THOMPSON, Chairman, VINCENT T. WILLIAMS, M. H. SHELBY, R. C. HAYNES.

On motion, duly seconded, the report was accept-

Dr. Morris B. Simpson, Kansas City, presented the report of the Committee on Public Policy and Public Relations.

REPORT OF THE COMMITTEE ON PUBLIC POLICY AND PUBLIC RELATIONS

In August of 1943 the Committee on Public Policy and Public Relations with the editors of the county society bulletins, namely, St. Joseph, Kansas City, Greene, St. Louis City and St. Louis County, had a meeting in St. Louis. This group recommended to the Council that the Council employ a professional public relations adviser to further the various plans and projects of the Association then under way and to plan and implement further future programs.

The Council took this proposal under advisement. At the next meeting of the Council a comprehensive schedule was presented and the Council employed Mr. Thomas Parry, Jr., Public Relations Consultant, to prepare a workable plan of operations for this Association. Mr. Parry presented such a program to the Council at a meeting early in January and after study and further deliberation, the Council on January 30, 1944, voted to submit a report of this plan to the House of Delegates and ask that the House of Delegates approve a plan or schedule for public relations involving the employment of a paid professional counsellor.

Since the meeting of the Council on January 30, the Council has lost the services of its Executive Secretary. This change in the office personnel must be recognized in making future plans. No plan for public relations can be carried through unless the personnel in the office of the Missouri State Medical Association is able to carry on actively throughout the state. The present group of employees can perform routine functions admirably, but could not be expected to carry through with the proposed plan of operation.

The Postwar Planning Committee, recommended by the Committee on Medical Economics at the last Annual Meeting, has been appointed and has begun work. The work of this Committee must also be taken into account in making recommendations for the future. The program of this Committee ties in very well with the plan as submitted by Mr. Parry and the work of this Committee will be greatly aided by a good public

relations counsel and proper publicity.

The particular points of the program submitted by Mr. Parry are familiar to most of the delegates. It is unnecessary to discuss them in particular. Public relations, our relations with the public, is in a state of flux, constantly changing. What we say does not count nearly as much as what we do. Action can influence public opinion. The proper use of publicity can inform the public of what the Missouri State Medical Association is doing. Likewise, much of the adverse propaganda now being directed at the medical pro-fession can be rendered ineffective. The work of our committees can be guided and performance aided by the use of proper informative channels. Finally, it is possible in many instances to arouse and develop public opinion to the point of making changes which will be favorable to the public and to the medical profession.

The medical profession has only one real objective and that is to render the best possible medical service to the public. It is the truth to say that the people of the United States have the best medical care in the world. They have, but it can be improved. Federal or state or any political control of medicine will be harmful, expensive, and is unnecessary. The medical profession can and should develop its services so that always better medical care is made available to the public.

The Committee on Public Policy and Public Relations urges that a public relations program, similar to that which has been proposed by Mr. Parry, be adopted in general, and that in particular these five

sections be immediately activated.

1. Medical education in Missouri must be immediately improved with the extension of the University of Missouri School of Medicine to four years with the last two years in Kansas City.

2. There must be extension of group hospital services to all sections of that state. There should be organized and established within the State of Missouri surgical and/or medical service plans as rapidly as it is feasible to do so.

3. County surveys should be made to investigate the need for hospital, hospital laboratory facilities and for other medical therapeutic and diagnostic facilities in the rural areas of the state. In order that the requirements determined by such surveys may be achieved, it will be necessary through public relations effort to secure community assistance and financial aid through philanthropic contributions, or otherwise to assist in obtaining and establishing the required facilities.

4. Promoting a more comprehensive understanding of good medical service and care among the lay people of the state in order that greater support from the public through interest in medicine and medical care may assist the profession in achieving the best medical facilities and medical service for all of the people of the state.

5. Further efforts to secure postgraduate medical education must be made.

These five points are only a few of the things that are urgent and warrant our immediate attention. Many others are important and no doubt can be taken up and worked out as time and personnel permit. As was stated, public relations is a fluid proposition. Every month the picture may change.

To carry out this program it will be necessary to have an active, trained secretary in the Association's office. Mr. McIntyre's departure must not stop our program. In addition to the Executive Secretary, the Committee feels that a trained public relations counsel must be employed and, finally, adequate funds must be secured. This will require an increase in the dues. Yearly assessments are only a stop gap. Personnel to be employed must be of high caliber and should not be required to undertake the position on a possible year

to year basis since the funds may be dependent upon an annual assessment rather than regular dues established by the By-Laws enabling a definite budget to be determined.

The committee recommends and moves that this report be adopted by the House of Delegates.

Following discussion by Drs. E. R. Brown, University City; R. E. Schlueter, St. Louis; Wallis Smith, Springfield, the report was referred to the Reference Committee on Resolutions.

The report of the Committee on Defense, Dr. C. E.

Hyndman, St. Louis, follows:

REPORT OF THE COMMITTEE ON DEFENSE April 1, 1943, to April 1, 1944

STATUS OF CASES

Cases pending April 1, 1943	6
Threats pending April 1, 1943	0
New cases since April 1, 1943	0
New threats since April 1, 1943	0
Cases settled during the year	0
Threats dropped during the year	0
Cases pending April 1, 1944	6
Threats pending April 1, 1944	0
C. E. HYNDMAN, Chairman,	

O. B. ZEINERT, L. P. FORGAVE, ROLAND S. KIEFFER, M. J. OWENS.

Dr. Hyndman, Chairman, reporting further, said:

The report of this Committee, as printed, no doubt has aroused some curiosity in the minds of many and I feel that some explanation should be made. It would be easy to interpret this report to mean that either there are practically no malpractice suits being filed, or that this Committee is inactive. As a matter of fact,

neither is the case.

During the last twenty or twenty-five years that I have been on this Committee, it has been our desire to encourage every physician to insure himself against unwarranted malpractice claims. This has finally been accomplished almost 100 per cent. Practically every physician is insured and the insurance companies take care of his interests as they should with this Defense Committee cooperating in whatever way they can. You, naturally, understand that it is the insurance companies who have to try the case and that our organization is in no way equipped to try cases in court.

The cases which have been reported recently to this Committee are only those in which unusual assistance has been needed. We have cooperated continuously with insurance companies without being conspicuous. Many defendants have been surprised to know that we

have had any part in their defense. Let us not get the idea that malpractice suits and threats have ceased to exist. In two companies alone, there were approximately one hundred cases in the State of Missouri pending at the end of 1943. The number of suits has been lessened perhaps by the fact that so many physicians are in military service and those suits which have been filed must remain pending for the duration. It is also possible that because the majority of people have plenty of money and do not need to resort to threats in order to gain a livelihood that fewer suits are filed. Of those suits which have been filed there seems to be a marked increase in the number in rural districts or smaller communities.

I should like again to urge every member of the State Association to carry adequate protective insurance in a good company in order that he may have complete protection with the cooperation of his Association Committee. The increased tension under which physicians are compelled to work, and the almost impossible number of patients they have to care for, seems to me to make this plea all the more urgent.

On motion, duly seconded, the report was accepted. The report of the Committee on Cancer, Dr. Dudley A. Robnett, Columbia, Chairman, follows:

REPORT OF THE COMMITTEE ON CANCER

The Cancer Committee has cooperated during the present year with the State Cancer Commission and the staff of the Ellis Fischel State Cancer Hospital for the care of indigent patients, also with the American Society for the Control of Cancer and the Women's Field Army. Speakers have been supplied to the

County Societies when they have been requested.

DUDLEY A. ROBNETT, Chairman,

WM. E. LEIGHTON, PAUL F. COLE, EDWIN C. ERNST, E. KIP ROBINSON.

On motion, duly seconded, the report was accepted. The report of the Committee on Medical Economics, Dr. Carl F. Vohs, St. Louis, Chairman, follows:

REPORT OF COMMITTEE ON MEDICAL **ECONOMICS**

The Committee on Medical Economics held its annual meeting in St. Louis on March 12, 1944. All members were in attendance and all stated complete approval for continuation of the program which has been developed in the last ten years. The Committee on Medical Economics is cooperating with the Postwar Planning Committee and will do its best to develop the part of the program that shall fall in its field of activity.

The Committee would like to preface its report with a quotation from the National Physicians Committee for the Extension of Medical Service. Its mes-

sage is crystal clear.

The American People do not want political medicine. They do want a plan or method that will make easier the payment for unusual and prolonged illness and for hospitalization." This demand must be met.

It has been very difficult to explain and for the membership to understand the entire program recommended by the Committee and for that reason this report is given in greater detail for your study.

Southeast Missouri Health Service From Jan. 1, to Dec. 31, 1943

The Southeast Missouri Health Service is a local incorporated association operating in six counties in Southeast Missouri, namely, Butler, Stoddard, Scott, Mississippi, New Madrid and Pemiscot. The fiscal matters of the service are under the direction of a board of seven directors elected by the members, one from each county and one at large. This board is supported by a county committee in each county. They direct procurement of membership and collection of funds, arrange through the secretary-treasurer for the payment of bills, present health service needs of the group of families living in the different communities to the Professional Health Service Board, receive the recommendations from the Professional Health Service Board and inform the membership on the operation of the service.

The health service phase of the program is directed by a Professional Health Service Board made up of nine members as follows: two general practicing physicians, two surgeons, two dentists, two hospital super-intendents and the District Health Officer of the State Board of Health. The physicians are supported by a county physician's committee of three in each county named by the County Medical Society. The professional board coordinates the principles of cooperation, directs and controls all medical and professional prac-

tices, approves bills submitted for health services, receives complaints and recommendations for improvement from county committees or the Board of Directors and arranges for adjustments when needed and informs the doctors of the policies governing the association's operations.

The full time secretary-treasurer of the Association serves as secretary of the Professional Health Service Board and of the Board of Directors. The chairman of each board is invited to meet with the other to coordinate their efforts.

This health service program is a cooperative undertaking between the member farm families, the local participating doctors, hospitals and others rendering health services. It is a project of the Missouri State Medical Economics Committee. The State Board of Health and the Farm Security Administration are cooperating with the planning and in the financing of the trial project. The purpose is to develop plans for delivering needed health services to moderate low-income farm families within their ability to pay from income. Also to study the share of the costs for health services that should and can be borne by these families and approximate the amount from local or other sources needed to supplement the family payments in order to compensate doctors adequately, hospitals and others for the health services rendered.

For the first year's trial of this program the families were asked to pay 6 per cent of their earnings; that is, gross income less farm operating expense. FSA funds were to be furnished to the Association in an amount to provide a total of \$32.00 for each family enrolled for physician's, surgeon's and hospital services. In addition, FSA funds were provided for special health services, (a) to handle pre-existing chronic physical conditions if correctable, (b) to correct accumulated dental defects among the school age children, (c) to provide a nursing program for health educational work among the families and assist doctors to conserve their time with these families and (d) to support the keeping of records necessary for research study and carry on management.

Bills for services rendered these families were to be submitted at the usual rate charged the average farm family for like service. An advance on account was made every three months to doctors or hospitals within the funds available. At the end of the year bills were prorated to pay all doctors in each county the same percentage from the funds allocated to that service.

The service started January 1, 1943. Enrollment of families began immediately with rapid progress, closing the year on December 31, 1943, with 1,639 family members totaling 8,765 persons. This was an average of 1,223 family members for the year totaling 6,543 persons. The average size of the family was 5.3 members

The following table shows receipts and disbursements for the first twelve months of operation which includes the cost of development of the program and the purchase of equipment required:

RECEIPTS

From family members	\$17,550.05 22,990.16
Total for annual recurring service	28 970 06
Total funds available for services 1943	\$76,318.48
EXPENDITURES	
Paid physicians and surgeons	7,972.00
Physicians \$ 87.41 Hospital 1,713.63	1,801.04

Total for annual recurring services. Special health services. Expense	17,860.58
Total cost less equipment cost	\$69,510.27
Equiping two dental trailers, office equipment, nurses' equipment	6,808.21
Total funds expended 1943	\$76.318.48

The average payment made by member families was \$14.35 under this prepayment plan when using 6 per cent of the earned income to determine ability to pay. This was nearly twice the cash payments made in the previous three years as indicated by a limited number of families surveyed showing a payment of \$7.73 per year. The \$14.35 average payment made by member families in 1943 represents 43.3 per cent of the payments to doctors and hospitals, and 26.7 per cent of the total costs when charging only 10 per cent of the equipment cost to expense for the year 1943.

The following table sets forth the total bills for services rendered, the amount paid and the per cent paid for physician's and surgeon's services:

			Per
	Total	Amount	Cent
	Bills	Paid	Paid
Physicians' services	\$28,386.15	\$19,582.87	68.9
Surgeons' services	13,990.75	9,792.70	69.9
Physicians' and surgeons'			
services on chronic cases	1,988.00	1,391.60	70.0
Total	\$44,364.90	\$30,767.17	69.4

There was a variation in the percentage payment for general practitioner's care in the six counties due in part to differences in the rate of charge for similar services, to the effective use of family education on conserving the doctor's time and of families obtaining early treatment to shorten the period of illnesses.

The percentage paid physicians for general practitioner care in each county was:

Butler County	96.1 per cent
Mississippi County	61.3 per cent
New Madrid County	54.2 per cent
Pemiscot County	
Scott County	51.2 per cent
Stoddard County	72.8 per cent
Total average	68.9 per cent

The professions are to be congratulated on the splendid service rendered these families during 1943. Throughout the year 4,516 persons received service. The services rendered are tabulated to give an idea of the kinds and extent of this service.

Physicians' Services Number of office calls 8.053

Number of home calls Obstetrical cases Average one obstetric case to every 6.3 families	957 194
Hospital	
Number of cases hospitalized	285 2,043
Other Services	
Immunizations Wassermanns taken Cases assisted by nurses Educational visits by nurses where no illness existed	894 3,801
Surgical Cases	
Number of tonsillectomies Number of appendectomies Major fractures, injuries, etc. Other surgery cases (minor)	102 45 54 134
Dental Service	

Fillings permanent teeth 1,403
Extractions deciduous teeth 360
Extractions permanent teeth 171
Treatments 2014

Treatments

Those services listed that were rendered by the physicians, surgeons, hospitals, dentists and nurses in prevention, diagnosis or treatment of illnesses total 27,821 services. This represents an average of 22.7 services per family per year. An appraisal of this service by those most familiar with the program indicates that this total service not only represents about double the service received by these families in previous years, but also an improvement in service through earlier treatments and the use of medical doctors. A number of families received a large amount of service. This was traced to a real need. Only about 1 per cent were excessive requests for service.

This service is causing families to become more aware of their health needs, to better understand more efficient use of available doctors' time and of hospital facilities, to show more willingness in applying prevention and early treatment and to realize what health services really cost. The families have fixed their rate of payment for 1944 to nearly double the average payment based on earnings. Estimates indicate they will pay from income about 70 per cent of their annual recurring physician, surgeon and hospital care for the present year as compared with 43.3 per cent paid in 1943.

This represents educational and financial progress, beneficial to both the professions and the families. Families are getting more services and earlier service reflecting a reduction in the length of illness.

Much credit for the progress of this trial is due the Professional Health Service Board with Dr. W. O. Finney as chairman, the Board of Directors with Mr. Frank Cook as chairman, and Mr. Thatcher Scism, Secretary-Treasurer.

The physicians of Southeast Missouri who have cooperated can be proud of their effort to help solve a problem that confronts the whole country and their experience and statistics will form the pattern for rural plans all over the country.

BLUE CROSS HOSPITAL SERVICE

Blue Cross plans have thrived well on a state-wide basis and continue to be well received by both physicians and the public.

Kansas City

Report of Activities Covering Prepayment Medical and Surgical Service Plans in the Western Missouri Area

Twelve months ending February 29, 1944

Blue Cross Hospital Service

Group Hospital Service, Inc., of Kansas City, in common with all other similar types of endeavor experienced many operating difficulties throughout the 1943-44 period. Membership terminations increased sharply.

The Hospital Service Plan showed a consistent growth, although that growth was slow. The principle factor of membership turn-over activities was constituted within the drastic reduction of the personnel of the Remington Arms, Lake City Plant.

Eleven thousand hospital cases were cleared on an ever increasing expense basis due to the continued raise in hospital per diem payments. Females continued to be hospitalized in greater ratio than males; also the fact that 41,000 residents of Greater Kansas City were in the military services as of the end of February 1944 had a definite reaction in hospital care utilization inasmuch as several thousand dependents of men going into military service were retained in the membership of the Plan.

Group Hospital Service, Inc., of Kansas City, ranks well in the group of financially stable Blue Cross Plans.

Reserves are such that economic readjustment, or the demands of an epidemic, could be met successfully. The reserves continued to increase throughout this period.

J. MISSOURI M.

JULY, 1944

The establishment of the prepaid surgical care program, which originated in June 1943, while it did not have great influence upon enrollment in the Hospital Service Plan in its early months, will have increased effect on hospital enrollment as the surgical plan grows. A contractual operating arrangement between the hospital service plan and the surgical service plan has lead to economies of operation and a great deal of simplicity in the presentation of a joint program, particularly concerning functions of membership dues billings and payroll deduction responsibilities on the part of the employer.

The membership of Group Hospital Service as of February 29, 1944, was 105,000.

SURGICAL CARE, INC., OF KANSAS CITY

As has been previously reported the medical profession in this area, in cooperation with the Wyandotte County Medical Society of Kansas City, Kansas, has for some time studied the possibility of an efficient low-cost surgical care program. A surgical service plan was actually instituted in June 1943 under the auspices and approval of the Jackson and Wyandotte County Medical Societies. Practicing physicians financed the Plan at the outset by advancing such money as was needed for early organizational expenses.

By utilizing the facilities already a part of the Blue Cross Hospital Service Plan, a rapid growth of membership in the Surgical Care program was accomplished. The Surgical Care Plan had some 250 groups, covering

10,000 persons as of February 29, 1944.

The program is being well received, both employees and employers being quick to realize the sound value to them. The cooperation of the medical profession has been excellent, there being 350 participating physicians. The membership is open to any ethical physician having licensure as issued by the State Board of Health of Missouri or Kansas.

The experience of Surgical Care has been consistent with the early estimates of the Board of Directors and was expected. The Plan has encountered a fairly high volume of elective surgery. This type of surgical care has been handled fairly, considering both the members' problem and the Plan's problem. Most of these procedures have been allowed and the physicians have been compensated 100 per cent on a fee level which

has seemed to be eminently satisfactory.

Both the Board of Directors of Surgical Care, Inc., and the Board of Trustees of Group Hospital Service, Inc., feel that the joint program has accomplished every projection made prior to inception. They further feel that by the end of 1944, tremendous accomplishments will have been achieved through increased enrollments, economies of operation, stabilization of payments to physicians for low income persons and far more importantly a practical demonstration and proof that the voluntary method will reach the individual member of the public, giving him sound and adequate protection against unexpected illness costs.

St. Louis

GROUP HOSPITAL SERVICE IN MISSOURI

In slightly less than eight years of operation, Group Hospital Service of Saint Louis, one of 76 nonprofit hospital service plans popularly known as the Blue Cross, has paid more than \$5 million in hospital bills for members. This figure covers 102,739 hospital bills, divided almost 60 per cent surgical and 40 per cent medical.

Benefits to members have been increased as the plan's reserves permitted and to date thirteen benefits have been added which cover all hospital services which do not come under the heading of professional services.

The Saint Louis plan covers all of Missouri with the exception of Jackson and Clay counties. These counties are covered by the Kansas City Blue Cross whose benefits are identical with those of the Saint Louis plan. The success of Blue Cross, both in Saint Louis and throughout the state, is due to three factors: first, sponsorship by local medical societies; second, the hospital's guarantee of service; and third, approval and active participation on the part of civic leaders. The Saint Louis plan does not attempt a local enrollment until all three factors are assured.

Group Hospital Service of Saint Louis has shown the way in providing care for conditions heretofore prohibited by hospital service plans and commercial insurance. The inclusion last July of diagnostic care in general hospitals or treatment in private or governmental sanataria for tuberculosis, mental, venereal, and drug and alcoholic diseases will prove an aid to the medical profession in early diagnosis and treatment

of these conditions.

Recommendations

The Committee recommends the coordination of all health activities in the state as it might be developed by the Postwar Planning Committee in the formation of the Health Security Administration of the State of Missouri. The Committee also recommends the further development of all plans now in operation and the development of a prepayment medical plan on a statewide basis.

CARL F. VOHS, Chairman, GEORGE A. AIKEN, C. A. W. ZIMMERMANN, W. F. FRANCKA, IRA H. LOCKWOOD,

On motion, duly seconded, the report was accepted. The report of the Committee on Mental Health, Dr. B. Landis Elliott, Kansas City, follows:

REPORT OF THE COMMITTEE ON MENTAL HEALTH

The Committee on Mental Health during the last year has continued its study of the laws of Missouri relating to the care and treatment of the mentally ill, with the idea of eventually presenting to the legislature a comprehensive and well worked out plan for changes in the laws of Missouri which may be found desirable. Along this line, recommendations recently were made to the Governor suggesting that he recommend to the legislature the removal of the restrictions on the number of physicians who can be employed in the state hospitals in Missouri, and restrictions on the salaries paid to personnel in the eleemosynary institutions of the state.

A symposium on Mental Health has been projected and is now being organized to appear in an early

issue of The Journal.

B. Landis Elliott, Chairman, F. M. Grogan, E. F. Hoctor, R. P. C. Wilson, Ralf Hanks.

On motion, duly seconded, the report was accepted. The report of the Committee on Maternal Welfare, Dr. E. Lee Dorsett, St. Louis, Chairman, follows:

REPORT OF THE COMMITTEE ON MATERNAL WELFARE

Due to the restrictions on transportation and the fact that members of this Committee are physicians doing obstetrics, the Committee has had no meetings during the year but confined its work to correspondence. The important question of fees paid by the Government for maternal care has been discussed in The Journal and a reply was requested from members of the Association as to their approval or disapproval of this plan. Evidently there is a lack of interest in this question as to date not one reply has been received.

For the Annual Luncheon Meeting of the Committee on Maternal Welfare, it was decided to combine with the Committee on Infant Care and a program has been arranged to take up the matter of payment for maternal and infant cases in Missouri as arranged by the aforementioned plan. Thie meeting will be held on Monday noon, April 24, and will be open for general discussion. It is hoped that all members of the Association interested in this matter will be free to express their opinions.

E. LEE DORSETT, Chairman, BUFORD G. HAMILTON, W. H. BREUER, H. B. GOODRICH, JOSEPH D. JAMES.

On motion, duly seconded, the report was accepted. The report of the Committee on Infant Care, Dr. Park J. White, St. Louis, Chairman, follows:

REPORT OF THE COMMITTEE ON INFANT CARE

Shortly after the very profitable luncheon meeting of the combined committees on Maternal Welfare and Infant Care held at Hotel Jefferson, St. Louis, April 19, 1943, the present Committee on Infant Care was appointed by President McAlester on consultation with

its Chairman and Dr. M. L. Gentry.

The Committee met at Jefferson City, September 25, 1943. In planning this meeting, and at the meeting itself, every effort was made to bring up for discussion pediatric problems in different areas in the state as represented by the members able to be present. Naturally, the Missouri Plan of Administration of Federal Emergency Infant Care for Dependents of Enlisted Men in the Armed Services received primary consideration.

Dr. Busiek, now the only pediatrician in Springfield, reported that he had received only one request for services under this program, adding that the Army Hospital (O'Reilly General) has an outpatient clinic where the children are taken for care. Replying to a question by Dr. Busiek, Dr. Gentry said that any physician has the right to refuse or to accept any patient under the EMIC program. The fee schedule of the EMIC plan was discussed in detail; as was also the now greatly simplified and improved green slip on which report of services is made.

Dr. W. Roger Moore, St. Joseph, reported that a few mothers who could afford to pay for care for their infants had applied under the EMIC plan. Others from the metropolitan areas said that this was rare in the large cities. Dr. Moore expressed an opinion, held by other practitioners, that he would prefer to treat infants of service men free rather than fill out all the necessary blanks. In answer to this the simplification

of the blanks was emphasized.

There was much discussion of ways and means of conserving the time of practitioners caring for infants and children, particularly with regard to (a) maintaining the appointment system, thus reducing crowding and spread of infection; and (b) management of the innumerable telephone consultations incidental to pediatric practice so that they may be used to conserve time and effort.

Dr. Antos described the well-baby conferences being conducted throughout the state by private physicians—more particularly those near Fort Leonard Wood and Camp Crowder. He reported that in areas where such policies have been established by county medical societies, immunizations are performed in clinics. Dr. Gentry described an immunization survey in twelve

rural counties and emphasized the need for further immunization clinics to be conducted by local phy-

Dr. White brought up the subject of supply of pasteurized milk for babies-particularly those near military camps and munitions factories. Drs. Gentry and Antos considered the situation under control in the areas of Fort Leonard Wood and Camp Crowder, but regarded the region of Southeast Missouri as the one presenting the greatest dangers.

Dr. White next introduced the subject of tuberculosis control among infants-more particularly the newlyborn infants—by routine tuberculin testing of all adults in contact with them, plus x-raying of those found to have positive tests. The work of the Kansas City Health Department under Dr. H. L. Dwyer was especially commended from this point of view.

The Committee gave its enthusiastic approval to the pamphlet prepared by Dr. Antos entitled "The Prevention and Control of Communicable Diseases," for statewide distribution to physicians and to health per-

Numerous other subjects were discussed by the Committee as pediatricians, but as these were not directly concerned with infant care, were not made officially of record. Foremost of these was the new law including cardiac children in the classification and program of crippled children-to which the committee (unofficially) gave its hearty approval.

Drs. Gentry and Antos of the Child Division of the State Health Department have kept in frequent touch with the Chairman and with some of the members of the Committee. The Committee is unanimous in its approval of their work.

PARK J. WHITE, Chairman, DAMON O. WALTHALL, EDWIN H. SCHORER, URBAN J. BUSIEK. HAROLD E. PETERSEN.

On motion, duly seconded, the report was accepted. The report of the Committee on Health and Public Instruction, Dr. Dudley A. Robnett, Columbia, Chairman, follows:

REPORT OF THE COMMITTEE ON HEALTH AND PUBLIC INSTRUCTION (McAlester Foundation)

There has been no activity by this Committee during the current year other than numerous conferences with other committees and officials of the State As-

sociation.

There is a balance of \$180.00 deposited in the Exchange National Bank, Columbia, Missouri, in the name of the Andrew McAlester Memorial Fund. This amount remains the same as it has been since 1931.

DUDLEY A. ROBNETT, Chairman. FRANK G. NIFONG, GRAYSON CARROLL, A. R. McComas, E. J. Schisler.

On motion, duly seconded, the report was accepted. The report of the Committee on Constitution and By-Laws, Dr. H. L. Mantz, Kansas City, Chairman, follows:

REPORT OF THE COMMITTEE ON CONSTITUTION AND BY-LAWS

Amend Chapter V., Section 1, which reads:

Section 1. The President shall preside at all meetings of the Association and the House of Delegates until its Speaker is chosen and shall appoint all committees not otherwise provided for; he shall deliver an annual address at such time as may be arranged and shall perform such other duties as custom or parliamentary usage requires. He shall be the real head of the profession of the state during his term of

office, and as far as practicable, shall visit, by appointment, the various sections of the state and assist the councilors in building up the county societies and in making their work more practical and useful. (As amended 1939.)

to read as follows:

Section 1. The President, shall preside at all meetings of the Association and the House of Delegates if the duly elected Speaker or Vice Speaker is not present, until its Speaker is chosen and shall appoint all committees not otherwise provided for; he shall deliver an annual address at such time as may be arranged and shall perform such other duties as custom or parliamentary usage require. He shall be the real head of the profession of the state and assist the Councilors in building up the county societies and in making their work more practical and useful.

Amend Chapter VI, Sec. 7, which reads:

Section 7. The Council shall provide for and superintend the issuance of all publications of the Association including proceedings, transactions and memoirs, and shall have authority to appoint an Editor and such assistants as it deems necessary. It shall prescribe the methods of accounting and through a committee of three of its members, to be known as a Committee on Auditing and Appropriations, shall audit all accounts of this Association. The Council shall adopt an annual budget providing for the necessary expenses of the Association which shall be prepared and presented for its consideration by the Committee on Auditing and Appropriations at the first meeting of the Council in November of each year, and submit a complete and detailed report to the component county medical societies as provided in Section 9, Chapter III. The Council shall submit an annual report to the House of Delegates which shall specify the character and cost of the publications of the Association, the amount and character of all its property, and shall provide full information concerning the management of all affairs of the Association which the Council is charged to administer. (As amended 1934.) ity to appoint an Editor and such assistants as it deems neces tion which the amended 1934.)

by striking out the entire section and adopting the following section in lieu thereof:

The Council shall appoint an Editor of THE Section 7. The Council shall appoint an Editor of The JOURNAL, manage and control the publications and the business affairs of the Association as provided by the Constitution and By-Laws and shall have such other duties as may be designated by the House of Delegates. The Council shall submit by publication in the April Journal of the Association a complete report of its proceedings, including a report of all monies received and expended, and/or disbursed during the year, and a recommended detail budget for the year ensuing from the close of the Annual Session for the approval of the House of Delegates. SECTION 7.

Amend Chapter VIII, Section 1, which reads:

Section 1. The annual dues shall be \$8.00 and shall be levied per capita on the members of the component societies of the Association, provided that for the first four years subsequent to graduation the annual dues shall be one half of the regular dues with all the privileges of active membership in the Association. Dues shall be payable on or before January 1 of the year for which they are levied. One dollar of the annual dues shall be credited to subscription to The Journal for one year. The secretary of each component society shall cause to be collected and shall forward to the offices of the Association the dues and assessments for its members, together with such data as shall be required for a record of its officers and members. Any member whose name has not been reported for enrollment and whose dues have not been remitted to the Secretary of this Association on or before April 1 shall stand suspended until his name is properly reported and his dues for the current year are paid. (As amended 1928, 1934.)

to read as follows:

Section 1. The annual dues shall be \$15.00 and shall be levied per capita on the members of the component societies of the Association, provided that for the first four years subsequent to graduation the annual dues shall be one half of the regular dues with all the privileges of active membership in the Association. Dues shall be payable on or before January 1 of the year for which they are levied. One dollar of the annual dues shall be credited to subscription to The Journal for one year. The secretary of each component society shall cause to be collected and shall forward to the offices of the Association the dues and assessments for its members, together with such data as shall be required for a record of its officers and members. Any member whose name has not been reported for a record of its officers and members. Any member whose name has not been reported for enrollment and whose dues have not been remitted to the Secretary of this Association on or before April 1 shall stand suspended. On December 31 of each year members delinquent in amount of dues or assessments, or any part thereof, shall ipso facto forfeit their membership.

Amend Chapter VII by adding a new section, Section 17, to read as follows:

Section 17. There shall be a Committee on Endowments appointed by the Chairman of the Council. The President and the Treasurer of the Association shall be ex officio members. The Committee shall have full authority and control of the endowment funds of the Association and shall submit an annual report of the income and disbursements for the consideration and approval of the Council. The report of the Endowment Committee and the Council action pertaining thereto shall be included in the report of the Council to

There has been some question about an increase in income so the Committee thought it wise to introduce the following resolution:

WHEREAS, The contemplated program of the Missouri State Medical Association cannot be performed with the present income, be it RESOLVED, That an assessment not to exceed \$7.00 be levied on each active member of the Missouri State Medical Association for the year 1945 and the Council be authorized to designate the amount.

In going over the By-Laws, it is evident that a rather complete revision is in order. The Committee therefore recommends: That the House of Delegates instruct the Committee on Constitution and By-Laws to submit a revised Constitution and By-Laws for adoption at the next Annual Session of the House of Delegates of the Association, and that the Committee, with the approval of the Council, employ legal counsel for advice and recommendations.

H. L. Mantz, Chairman, G. T. Bloomer, JOSEPH C. PEDEN, ROBERT VINYARD, Отто W. Косн.

On motion, duly seconded, the report was referred to the Reference Committee on Constitution and By-Laws.

The report of the Committee on Conservation of Eyesight, Dr. C. Souter Smith, Springfield, Chairman, follows:

REPORT OF THE COMMITTEE ON CONSERVATION OF EYESIGHT

The Council of the Association referred to the Committee on Conservation of Eyesight the program for the prevention of blindness which had been submitted to the Missouri State Medical Association by the Missouri Commission for the Blind. This included a proposed list of fees to be paid to ophthalmologists for work referred by the Commission.

After study of the program and after consulting the ophthalmologists who in the past have been doing the surgery for the Commission without pay, the Committee made the following recommendations: That the Missouri State Medical Association should neither approve nor disapprove the list of fees proposed by the Missouri Commission for the Blind, and that the individual ophthalmologist be allowed freedom to accept this work or reject it as he wished. The Committee also suggested that the Association emphasize to the Commission the importance of a preliminary investigation thorough enough to make sure that the applicant for eye care is financially unable to pay for this care. The Council approved these recommendations.

The Chairman of the Committee on Conservation of Eyesight was appointed Chairman of a special committee of the Council, together with the chairmen of the Committee on Mental Health and Committee on Tuberculosis, to cooperate with the Board of Managers of the Eleemosynary Institutions. The Committee has recommended to Mr. Ira Jones, President of the Board, that changes be made in statutes governing eleemosynary institutions, especially in regard to physicians' salaries. This is being brought before the special session of the Legislature now meeting.

C. Souter Smith, Chairman, PHILIP S. LUEDDE, ROBERT S. MINTON, JOHN McLEOD. C. P. DYER.

On motion, duly seconded, the report was accepted. The report of the Committee on Control of Venereal Disease, Dr. Rogers Deakin, St. Louis, Chairman, follows:

REPORT OF COMMITTEE ON CONTROL OF VENEREAL DISEASE

The Committee on Control of Venereal Disease met with representatives of the State Board of Health in Jefferson City on July 15. The following were present: Drs. Rogers Deakin, St. Louis, Chairman; Arthur W. Neilson, St. Louis; John Williams and Rolla Wolcott, Jefferson City; C. T. Ryland, Lexington, and Mr. Raymond McIntyre, St. Louis.

Drs. John Williams and R. R. Wolcott, of the State Board of Health, reviewed for the Committee various aspects of the venereal disease control program in the state during previous years as well as measures and steps contemplated for the future. These consist, for the most part, of the continued use of county, district and municipal health centers and subsidized physician clinics.

As has been the case heretofore, the Committee found the State Board of Health most anxious to institute only such steps as met with the approval of the Committee and most eager for such advice as the Committee felt constrained to offer.

The Committee has served in the past, and will continue to serve, in an advisory capacity to the State Board of Health on matters relating to the control of venereal disease.

A letter to the Missouri State Medical Association from the Surgeon General of the United States Public Health Service was read and discussed. The letter requested the cooperation of the State Medical Association with the State Bar Association in efforts to solve the problems of prostitution and delinquency. It was the consensus of opinion that this was a matter, the initiative of which rested with the Bar Association. It was voted that the Executive Secretary of the Association be authorized to express the willingness of the Committee to cooperate with the State Bar Association in any actions which they might initiate.

The Committee cooperated with the Committee on Postgraduate Course and the State Board of Health in bringing Dr. Percy S. Pelouze, Special Consultant in Gonorrhea Control for the U. S. Public Health Service, to the state for twenty-one addresses before component societies.

> V. ROGERS DEAKIN, Chairman, ARTHUR W. NEILSON, C. T. RYLAND, J. P. HENDERSON, W. S. SEWELL.

On motion, duly seconded, the report was accepted.

REPORT OF THE COMMITTEE ON STUDY OF MEDICAL PRACTICE LAWS

Dr. J. MILTON SINGLETON, KANSAS CITY, CHAIRMAN: The work of this Committee has been taken over to a large degree by the Public Policy and Public Relations Committee and there has been nothing done by this committee for several months. I therefore move that this Committee be discharged.

Upon second, this motion was passed. The report of the Committee on Tuberculosis, Dr. E. E. Glenn, Springfield, Chairman, follows:

REPORT OF THE COMMITTEE ON TUBERCULOSIS

The Tuberculosis Committee has held no formal meetings during the last year. The members of the Committee have urged that a division of tuberculosis be established in the State Health Department. Such a division headed by a physician qualified in tuberculosis work could correlate the different activities in the state necessary for tuberculosis control. The Committee feels that the follow-up of selectees rejected because of tuberculosis could thus be greatly improved in the rural districts. The Chairman, who is a member of the Advisory Committee to Eleemosynary Institutions, has helped to formulate suggested changes in the statutes which will allow better salaries for physicians at the State Sanatorium so that an adequate staff can be kept more readily for that institution.

E. E. GLENN, Chairman, GEORGE D. KETTELKAMP, J. A. STOCKER.

On motion, duly seconded, the report was accepted. The report of the Committee on Rural Medicine, Dr. H. L. Kerr, Crane, Chairman, follows:

REPORT OF COMMITTEE ON RURAL MEDICINE

The Committee on Rural Medicine has given a great deal of thought to the work during the year. It is found that it is quite impossible to make a report without getting into the field of "medical economics"

or "postwar planning."

Rural practitioners are carrying on bravely and with little or no complaint. They are short handed on account of many men going to fight our battles, and so few young men have located themselves in rural communities during the last twenty-five years. Therefore the cultists seize every opportunity to plant themselves at strategic points, holding themselves out as practitioners of medicine and trying to do a job for which they have had little or no preparation.

Thus there are in our state two separate and distinct standards of practice. This apparently is a problem

for the rural practitioners.

If for any reason one thinks this is not correct, just try to interest some group of urban medical men and see how far he gets. They seem to forget that "birds of a feather flock together" and that the cultists refer patients to their kind at so-called hospitals for socalled surgery or what not.

Fortunately, or otherwise, some of these patients refuse the services offered at these places and go to

regular medical men accompanied by cultists.

We have heard of some regular medical men who refuse to allow cultists to assist in surgery or administer anesthesia, and some who refuse the cultist the privilege of caring for the patient during convalescence.

Some of our neighboring states have handled this

matter.

H. L. KERR, Chairman, R. E. BREUER.

On motion, duly seconded, the report was accepted. The report of the Committee on Study of Cardiac Disease, Dr. J. DeVoine Guyot, Jefferson City, Chairman, follows:

REPORT OF THE COMMITTEE ON STUDY OF CARDIAC DISEASES

At the call of the Chairman the Committee and advisory board of the Committee met in Jefferson City, June 20, for the purpose of discussion and outlining a definite procedure for the year.

Mr. McIntyre reported on the reception which he found to the Committee's program throughout the state in the various counties which he visited and stated that it was very good.

Reports from other states and other cardiac organizations were read, all of which were complimentary.

A report on the planned activity of the Metropolitan Life Insurance Company in regard to publicizing facts regarding rheumatic fever was read and after discussion it was voted that the Committee assist in every way it was possible.

After discussion the following activities for the year

were decided upon:

(1) That the Committee operate in conjunction with the Postgraduate Committee in presenting before the various county societies programs on cardiac subjects, supplemented with various exhibits, lantern slides and motion pictures.

(2) That the Committee cooperate with the Metropolitan Life Insurance Company in publicizing the dangers of rheumatic fever in childhood, especially in

relation to the heart.

(3) That the Committee start a program which has as its objective the securing of legislation designed to

secure state aid for cardiac cripples.

(4) That the Committee hold a dinner or luncheon meeting at the time of the Annual Session to which would be invited one or more guest speakers of national reputation whose subjects might be followed by a round table discussion on timely cardiovascular subjects.

(5) That a page in The Journal be conducted in the interest of cardiovascular disease and to which would be contributed abstracts of current literature on car-

diac subjects.

It was suggested that a subcommittee be charged with the gathering of such material as would contribute to the interest of such talks as our members might be called upon to give. Dr. R. O. Muether, St. Louis, was made chairman of this subcommittee.

Since the Committee has thus far operated without funds of any kind, Mr. McIntyre suggested that the Council be asked to designate an amount which could

be used by the cardiac committee.

The page on abstracts has been in operation since the October issue. The rest of the contemplated program has suffered because of the demands of the Army, but it is hoped to put all of these into operation as soon as possible.

J. DEVOINE GUYOT, Chairman, A. GRAHAM ASHER, JULIUS JENSEN.

On motion, duly seconded, the report was accepted. The report of the Committee on Postwar Planning, Dr. M. Pinson Neal, Columbia, Chairman, was presented in brief.

On motion, duly seconded, the report was accepted and ordered published in the June issue of THE JOURNAL. (This appeared in the June issue of THE JOURNAL.)

The report of the Council, Dr. W. A. Bloom,

Fayette, Chairman, follows:

REPORT OF THE COUNCIL

Meeting of August 22

The Council of the Missouri State Medical Association met at the Coronado Hotel, St. Louis, August 22, at 10:30 a. m., Dr. W. A. Bloom, Fayette, Chairman, presiding. Those present were Drs. A. S. Bristow, Princeton; H. B. Goodrich, Hannibal; Joseph C. Peden, St. Louis; R. B. Denny, Creve Coeur; W. A. Bloom, Fayette; R. W. Kennedy, Marshall; H. L. Mantz, Kansas City; Wallis Smith, Springfield; Paul Baldwin, Kennett, Councilors; A. W. McAlester, Kansas City, President; R. L. Thompson, St. Louis, Secretary-Editor; C. E. Hyndman, St. Louis, Treasurer; Robert Mueller, St. Louis, Chairman, Procurement and Assignment Service, and President, St. Louis Medical Society; C. Souter Smith, Springfield, President, Greene County Medical Society; Ralph A. Kinsella, St. Louis, and Nathan A. Womack, St. Louis, members of the Committee on Scientific Work; M. L. Gentry, Jefferson City, State Board of Health; Mr. Raymond McIntyre, St. Louis, Executive Secretary.

The minutes of the last meeting of the Council were approved as published in The JOURNAL.

A letter from the St. Louis Medical Society recommending the appointment of Dr. Joseph C. Peden, St. Louis, as Councilor for the Third District to fill the unexpired term of Dr. Curtis H. Lohr, who resigned to enter military service, was read. The Council voted to designate Dr. Peden as Councilor for the Third District.

The Council requested that minutes of each Council meeting be sent to members of the Council as soon

as feasible after each meeting.

Dr. Goodrich reported that the Committee of the Council on Insurance for Employees of the Association had several plans before it which were being considered.

The Committee on Sectional Meetings recommended that a postgraduate war medical program using both civilian physicians and physicians in the service be held this fall at an 8th Councilor District meeting in Springfield. It was further suggested that the Councilor of the 8th District work with the Committee on Postgraduate Course of the Association in developing a program that would cover certain war medical subjects as well as certain civilian medical subjects and this program be submitted to the proper authorities of the Army and Navy for approval. A motion was passed to this effect.

It was voted to have at least one Councilor District meeting in each district this winter or next spring, the programs to be of a strictly business nature for consideration of the problems facing organized medicine in securing better medical service for the people of Missouri. The following committee was appointed to develop a program for submission to the Councilors for these meetings: Drs. C. E. Hyndman, Chairman; A. W. McAlester, W. A. Bloom, Morris B. Simpson, James R. McVay, Mr. T. R. O'Brien and Mr. Raymond McIntyre.

Dr. Robert Mueller, State Chairman of Procurement and Assignment, spoke on the present status of this service and answered questions of individual Coun-

cilors.

The Annual Session was discussed and it was decided to have the meeting on April 23, 24 and 25, 1944, in the Municipal Auditorium, Kansas City, with head-quarters at the Muehlebach Hotel. It was decided to have the Session similar to the 1943 Session with an additional half day scientific session on Tuesday morning with the House of Delegates meeting on Tuesday afternoon.

The matter of members in arrears in dues was discussed and the Executive Secretary was instructed to contact secretaries of county medical societies in an attempt to bring all suspended members into active membership. It was voted to request the Committee on Constitution and By-Laws to recommend an amendment which would give the Association power to drop members who have been suspended for nonpayment of dues for an unreasonable time.

It was voted that the Council Committee on Councilor District organizational meetings act with the Community Health League in regard to the Wagner Bill and other national legislation concerning which Congress-

men should be contacted.

The Committee on Public Policy and Public Relations presented the following recommendation: The Committee on Public Policy and Public Relations recommends the employment of a public relations counsel and requests the Council to make such appointment and appropriate such funds as may be necessary. The Council moved to study this proposal and to delay action until plans were better formulated, in the meantime the Executive Secretary to act as public relations counsel.

Dr. M. L. Gentry, Jefferson City, Director, Division of Child Hygiene, State Board of Health, presented the

plan of the U. S. Children's Bureau for the maternity and obstetric care of wives and the pediatric care of children of men in service. He gave an opinion of the Attorney General that the interpretation in Missouri included in the persons who could give this care M.D.'s, midwives, osteopaths and obstetric nurses.

After discussion by Drs. Mantz, Hyndman, Peden, Bristow and Gentry, it was decided that the Council should take no action on the report of Dr. Gentry. Dr. Gentry was thanked for presenting the matter to the

Council.

Dr. Mantz invited members of the Council and members in their districts to attend the meeting of the Kansas City Southwest Clinical Society in Kansas City on October 4, 5 and 6.

It was decided to hold the next Council meeting the

latter part of October.

On motion it was decided that the Committee on Postwar Planning should make a preliminary report to the Council prior to the meeting of the House of Delegates.

Meeting of October 23, 24, 1943

The Council met at the Coronado Hotel, St. Louis, at 9:30 a. m., October 23, the Chairman, Dr. W. A. Bloom, presiding. Those present were Drs. H. B. Goodrich, Hannibal; Joseph C. Peden, St. Louis; R. B. Denny, Creve Coeur; W. A. Bloom, Fayette; R. W. Kennedy, Marshall; Herbert L. Mantz, Kansas City; Wallis Smith, Springfield; E. C. Bohrer, West Plains; Paul Baldwin, Kennett, Councilors; A. W. McAlester, Jr., Kansas City, President; R. L. Thompson, St. Louis, Secretary-Editor; C. E. Hyndman, St. Louis, Treasurer; Raymond McIntyre, St. Louis, Executive Secretary. Dr. Dudley S. Conley, Columbia, Dean, University of Missouri Medical School; Dr. Robert Mueller, St. Louis, State Chairman, Procurement and Assignment Service, and Mr. W. H. Bartleson, Kansas City, Executive Secretary, Jackson County Medical Society, were guests during the day.

The question of physicians living in counties which were unorganized or in which county societies were inactive was discussed by Drs. Smith, Goodrich, Denny and McAlester. It was voted, upon motion by Dr. Smith, that physicians in unorganized counties or counties in which societies are inactive due to war conditions may join temporarily a society in a surrounding county for the duration of the war.

Dr. Mantz presented a tentative schedule for the Annual Session and announced chairmen for the local

committees.

Dr. Bloom explained Mr. McIntyre's status concerning military service and stated that Mr. McIntyre had made application for a commission in the Navy, the result of which was not yet known. It was voted that should Mr. McIntyre enter military service his job would be kept open for him.

The Chairman was instructed to appoint a committee to study and set up means by which the Association could receive endowments. The following committee was appointed: Drs. Peden, Chairman, Kennedy and

Baldwin.

The following letter from Mr. Ira A. Jones, President, Board of Managers, State Eleemosynary Institutions, was read:

"We in this Department meet problems of a medical nature in three different fields. First, from our mental hospitals; second, from our tuberculosis hospital and, third, in the Blind Commission.

"For years this Department has just been working along without any direct contact with the State Medical Society. We are just wondering if it would not be better for the State Department, and the Medical Society, if a working arrangement could be made with the Society under the above three headings.

"I am in Kansas City at different times and would be very glad to call on you and talk the matter over, or would be glad to receive any suggestions you have to make on whether closer cooperation would be of benefit to the state and the Medical Association."

Dr. McAlester read a letter from Mrs. Lee Johnston of the Missouri Commission for the Blind asking co-

operation of the Association with this work.

These letters were discussed by Drs. Goodrich, Mantz, Peden, Smith and Thompson. It was decided to ask Mr. Jones to appear before the Council. It was voted, upon motion of Dr. Goodrich, that chairmen of the three committees most closely connected with the work of the Eleemosynary Board, the committees on Conservation of Eyesight, Mental Health, and Tuberculosis, be appointed a committee to cooperate with the Eleemosynary Board, the chairman of the Committee on Conservation of Eyesight to be the chairman of the committee.

It was voted that the program presented by the Commission for the Blind be referred to the Committee on Conservation of Eyesight with power to act.

The Secretary was asked to read a clipping from the Kansas City Star concerning a study to be made by the University of Missouri of medical care in Missouri.

The following letters were read:

"'Dr. Frederick A. Middlebush, President, "University of Missouri, "Columbia, Missouri.

"Dear Dr. Middlebush:

"Dear Dr. Middlebush:
"I am very much interested after reading the article in yesterday's Kansas City Star in your plans for a survey of the state's need and resources for medical education. Certainly this is a timely move.
"As chairman of the Council of the Missouri State Medical Association I wish to assure you that the Society will cooperate with you in any way possible to help in this survey. The files at the State Office will be made available to you, and you have our hearty support in any move that is for the good of the State of Missouri and the University of Missouri. Missouri.

"There is to be a meeting of the Council of the State Association at the Coronado Hotel, St. Louis, Missouri, Saturday morning at 10:00 o'clock. We will welcome a representative from the University if there is anything you desire

to bring to our attention at this time.

"Very sincerely yours, (Signed) "W. A. Bloom, M.D."

"Dr. W. A. Bloom,

"Dr. W. A. Bloom,
"Missouri State Medical Association,
"St. Louis, Missouri.
"My dear Dr. Bloom:
"I appreciate very much indeed your letter of October the seventeenth in which you assure me that the Missouri State Medical Association will cooperate in any way possible to assist the University Administration and the Board of Curators in making the survey of the entire problem of medical education as it relates to the State University. I have talked this entire matter over with Dean Dudley S. Conley and have told him that we of course would count on the fullest cooperation from his office in making this survey and arriving at the facts in the matter. I can assure you that we will welcome the aid that your Council and the Association can give us as we move forward.
"I trust that in the not too distant future I may have the opportunity of discussing the whole matter with you. The entire program covering the survey has not yet been sufficiently refined to warrant us in discussing the plan with the Council formally, although I want you to know that I appreciate very much your invitation.

"With kindest personal regards, I beg to remain "Faithfully yours,

"Faithfully yours, (Signed) "F. A. Middlebush."

The following committee was appointed to study this situation and offer their services to Dr. Middlebush: Drs. Mantz, Chairman, Goodrich and Bohrer.

Dr. Mantz presented a program of work to be done in public relations and suggested that if the Association was to hire a public relations counsel, the Council should confer with such a man. The subject was discussed by Drs. Hyndman, Thompson, Smith, McAlester, Goodrich, Peden, Mantz, and Mr. Bartleson. It was decided to ask Mr. Thomas Parry whom Dr. Mantz and Mr. McIntyre had contacted to appear before the Council at 9:30 Sunday morning.

Dr. Conley spoke on the survey to be made by the University of Missouri on medical care in the state. He was told that a committee had been appointed which would be ready to cooperate at any time.

Dr. McAlester announced the appointment of the Committee on Postwar Planning as follows: Drs. M. Pinson Neal, Columbia, Chairman; Ira H. Lockwood, Kansas City, and Robert Mueller, St. Louis, with Delegates to the American Medical Association as associate members.

Meeting of October 24

The Council convened October 24 at 9:30 a. m., Dr. The Council convened October 24 at 9:30 a. m., Dr. W. A. Bloom, Chairman, presiding. The following were present: Drs. H. B. Goodrich, Hannibal; Joseph C. Peden, St. Louis; R. B. Denny, Creve Coeur; W. A. Bloom, Fayette; R. W. Kennedy, Marshall; Herbert L. Mantz, Kansas City; Wallis Smith, Springfield; E. C. Bellevi, W. Malli, C. L. C. Bellevi, W. M. Malli, E. C. Bohrer, West Plains, Councilors; A. W. McAlester, Jr., Kansas City, President; R. L. Thompson, St. Louis, Secretary-Editor; C. E. Hyndman, St. Louis, Treasurer; Raymond McIntyre, St. Louis, Executive Secretary. Col. W. L. Gist, Jefferson City; Mr. Ira A. Jones, President, Board of Managers, State Eleemosynary Insti-tutions; Dr. Robert Mueller, St. Louis; Mr. T. R. O'Brien, St. Louis, Executive Secretary, Community Health League; Mr. W. H. Bartleson, Executive Secretary, Jackson County Medical Society; Mr. Thomas Parry, public relations representative, were guests during the

Mr. Parry discussed the subject of public relations with the Council. He stated that a preliminary study would have to be made before definite details could be given. After Mr. Parry left the session this was discussed by Drs. Mantz, Smith, Thompson, Peden, Bohrer, Bloom, Goodrich, Kennedy, McAlester, Denny, Hyndman and Mr. O'Brien. It was voted, upon motion by Dr. Smith, seconded by Dr. Mantz, that a committee of three, Dr. McAlester, Dr. Bloom and Mr. McIntyre, select a man to lay out a program for public relations which is to be submitted to the Council, the initial expense not to exceed \$1,500.

The Council voted approval of the general principles of the program on public relations presented by Dr.

Col. W. L. Gist explained a new plan which Selective Service has adopted. This will entail a survey on each draftee which will become a confidential report primarily for use at the armed forces' induction stations. The survey work will be done principally by Social Security workers. The plan was established because approximately 25 of every 100 rejections are for neuropsychopathic reasons.

Dr. Mantz moved that the Council record its feeling that a qualified social worker should be employed in

Col. Gist's office. The motion was passed.

Mr. Jones of the State Eleemosynary Board explained some of the problems before the Board in which the Association could be of aid. One of the problems was the obtaining of medical personnel at the Missouri State Sanatorium at Mount Vernon and whether or not Japanese American citizens should be employed.

The Council voted to recommend the employment of Japanese American citizens who are qualified med-

ically for these positions.

Mr. Jones was told that a committee had been appointed to cooperate with the Board and that the matter of the Commission for the Blind had been referred to the Committee on Conservation of Eysight.

Dr. Goodrich, reporting for the Committee on Insurance, recommended that the Council recommend to the House of Delegates that the plan of insurance set up by the New England Mutual Life Insurance Company be accepted for employees of the Association. The Council approved this recommendation.

Mr. McIntyre read Proposal No. 23 relating to public welfare which has been presented in the Constitutional Convention. This was discussed by Drs. Peden and

The Council instructed the Executive Secretary to write a letter of sympathy to Mrs. E. Lee Miller, Kansas City.

Meeting of January 15, 16, 1944

The Council met at the Coronado Hotel, St. Louis, at 10:00 a. m., January 15, the Chairman, Dr. W. A. Bloom, presiding. Those present were Drs. A. S. Bristow, Princeton; H. B. Goodrich, Hannibal; Joseph C. Peden, St. Louis; R. B. Denny, Creve Coeur; W. A. Bloom, Fayette; R. W. Kennedy, Marshall; H. L. Mantz, Kansas City; Wallis Smith, Springfield; E. C. Bohrer, West Plains; Paul Baldwin, Kennett; A. W. McAlester, Jr., Kansas City; R. L. Thompson, St. Louis; C. E. Hyndman, St. Louis; M. Pinson Neal, Columbia; Mr. W. H. Bartleson, Kansas City; Mr. Raymond McIntyre, St.

The Executive Secretary presented the question of honor members, members in military service and active members refusing to pay the assessment. After discussion by Drs. Smith, Bohrer, Peden and Mantz, it was voted that the assessment should be viewed as dues and the by-laws covering dues should be considered to cover the assessment. It was suggested that honor members might desire to pay the assessment and the secretary was instructed to write honor members giving them the opportunity to pay the assessment.

The changing of the South Central Counties Medical Society into the Howell-Oregon-Texas County Medical Society and the Wright-Douglas County Medical

Society was approved.

The following excerpts from a letter from a Cole County member were read: "At a meeting of the Cole County Medical Society the last week in December it was decided that no physician would appear before any organization to discuss socialized medicine. We have some members who are favorable to the Wagner-Murray-Dingell bills. Those members who are opposed to the bill are sponsoring an ad which will appear in the Jefferson City papers soon."

The following letter from the Michigan State Medical Society was read: "The House of Delegates of the Michigan State Medical Society, at its session of September 20-21, 1943, adopted the following resolution

by unanimous vote:

"Resolved, That the House of Delegates of the Michigan State Medical Society instruct its delegates to the American Medical Association House of Delegates to support and fight for the principles enunciated by the several states in resolutions which were aimed to establish in Washington, D. C., a bureau of information to aid members of Congress (in order to defeat attempts to lower the standards of the practice of medicine in the United States) and be it further "Resolved, That the Council of the Michigan State Medical Society be instructed to contact all other state medical societies for the purpose of implementing this objective. "In compliance with the instruction of our House of Delegates, we are transmitting this resolution to you with the request that it be considered by your Council or governing board so that similar action may be taken in your State to implement this objective. We will be grateful for a report on any action taken by your governing board on this matter." "Resolved, That the House of Delegates of the Michigan

The following resolution adopted by representatives of Arizona, California, Colorado, Idaho, Oregon and Utah at a meeting on December 11 was read:

"Resolved, That it is the sense of the representatives of the western state medical associations that an organization be created to maintain a service bureau in Washington, D. C., for the purpose of informing governmental agencies and representatives with regard to public health matters affecting the western states and to inform the medical profession of all federal government activities affecting the profession; and

be it further "Resolved, That other state medical associations be in-

"Resolved, That other state medical associations be invited to join with the western states in a nationwide program of this character; and be it further "Resolved, That, temporarily, the organization be called the 'Western States Public Health League' and be composed of the eleven western state medical associations until a permanent constitution and by-laws are adopted."

These letters were referred to the Committee on Public Policy and Public Relations for study and report to the Council.

A letter from Dr. Harold Swanberg, Quincy, Ill., asking that a Missouri member of the board of trustees of the newly formed Swanberg Medical Foundation be appointed was read. It was decided that it was not within the province of the Council to make such an appointment.

The Executive Secretary presented the problem of several county societies which have not met for many years, elected officers or any member paid dues. It was decided that each Councilor should be notified of these societies and a study be made by the Councilor and recommendation made at the next Council meeting.

A committee to draw up a resolution condemning the Wagner-Murray-Dingell bills was appointed as fol-

lows: Drs. Baldwin, Denny and Goodrich.

The following committee was appointed to study the report to be submitted by Mr. Thomas Parry on a public relations program: Drs. Mantz, Peden, Bristow, Thompson and Smith.

A letter from Dr. Olin West stating that the Treasury Department had requested that physicians organize in promoting the ensuing War Bond Drive was presented. The Executive Secretary was instructed to give this information to the secretaries of component so-

Dr. Peden asked further information on the wishes of the Council in regard to the work of the Committee on Endowments. After discussion by Drs. Mantz, Mc-Alester and Thompson, the Committee was instructed to carry on further study and report to the Council. Dr. Thompson suggested that the endowment fund if established be termed the Fund for Advance of Scientific Education and Research.

Dr. Mantz reported that the Committee to cooperate with Dr. Middlebush had not been called upon to act.

The following report by Dr. C. Souter Smith, Springfield, for the Committee appointed by the Council to study recommendations by the Commission for the Blind was presented:

"On October 23, 1943, the Council referred to this Committee the program for the prevention of b.indness which had been submitted to the State Medical Association by the Missouri Commission for the Blind. This included a proposed list of fees to be paid to ophthalmologists for work referred

by the Commission.

"After study of the program and after consulting the ophthalmologists who in the past have been doing the surgery for the Commission without pay, the Committee makes the following recommendations: That the Missouri State Medical Association should neither approve nor disapprove the list of fees proposed by the Missouri Commission for the Blind; and that the individual ophthalmologist be allowed freedom to accept this work or reject it as he wishes. The Committee also suggests that the Association emphasize to the Commission the importance of a preliminary investigation thorough enough to make sure that the applicant for eye care is financially unable to pay for this care.

The report was approved and the Council voted to thank Dr. Smith for her work.

Dr. Neal spoke briefly on the work of the Postwar Planning Committee.

Dr. Bloom announced that Mr. McIntyre had received a commission in the Navy and was now awaiting orders.

The following committee to study the needs of the office in Mr. McIntyre's absence was appointed: Drs. Thompson, Smith and Goodrich.

The Council adjourned for lunch.

Those attending the afternoon session, in addition to those in attendance in the morning, were Drs. Carl F. Vohs, St. Louis; Morris B. Simpson, Kansas City; Mr. T. R. O'Brien, St. Louis; Mr. Thomas Parry, St. Louis.

Dr. Thompson presented an identification bracelet to Mr. McIntyre in appreciation for his work for the Association.

Mr. Parry presented a report on a suggested public relations program for the Association.

This was discussed by Drs. Smith, McAlester, Vohs,

Peden, Simpson, Thompson and Mr. Parry. The Council adjourned for the committee to study

the report.

Meeting of January 16

The Council convened at 10:00 a.m., January 16, with the following present: Drs. A. S. Bristow, Princeton; H. B. Goodrich, Hannibal; Joseph C. Peden, St. Louis; R. B. Denny, Creve Coeur; W. A. Bloom, Fayette; R. W. Kennedy, Marshall; H. L. Mantz, Kansas City; Wallis Smith, Springfield; E. C. Bohrer, West Plains: Paul Baldwin, Kennett: A. W. McAlester, Jr., Kansas City; R. L. Thompson, St. Louis; C. E. Hyndman, St. Louis; M. Pinson Neal, Columbia; Robert Mueller, St. Louis; R. E. Schlueter, St. Louis; Mr. T. R. O'Brien, St. Louis; Mr. W. H. Bartleson, Kansas City; Mr. Raymond McIntyre, St. Louis.

Dr. Goodrich reported that the committee to study the needs of the Association office during Mr. McIntyre's absence felt that one more stenographer should be employed and the salary of Miss Penn should be increased, under the direction of the Chairman of the Council. The report was approved.

Councilors were called upon for individual Councilor reports. Dr. Mantz reported that a public relations program had been started in Jackson County and an assessment of \$25.00 per member had been paid by all but forty-one members by December 31. Dr. Smith reported a successful wartime meeting in Springfield at the O'Reilly General Hospital.

Dr. Baldwin presented the following resolution which

was adopted:

"Whereas, The Wagner-Murray-Dingell bills (S. 1161, H.R. 2861) will come up shortly for consideration by our National

Congress, and

"WHEREAS, In the event it should become a law its provision would so greatly change the methods of medical service to the people of the United States, that it is the duty of the Council of the Missouri State Medical Association to go on

Council of the Missouri State Medical Association to go oil record either for or against such proposed legislation.

"It is the sense of the Council of the Missouri State Medical Association that the passage of the Wagner-Murray-Dingell bills would have a bad effect on the quality of medical service rendered to the people of the United States, and that its provisions are such that it would adversely affect the progress of medicine by forcing undesirable changes in the methods of teaching and research in the medical field, therefore be it

"Resolved, That the Council of the Missouri State Medical Association is opposed to the passage of the Wagner-Murray-Dingell bills (S. 1161, H.R. 2861) and that the Senators and Representatives of Missouri be notified of this action."

Dr. Mantz presented the following report of the committee to study the public relations program:

" 'The Council shall submit an annual budget to the House of Delegates. All resolutions providing for appropriations shall be referred to the Council and all appropriations approved by the Council shall be included in the annual budget.' (Article X, Constitution.)
"The Committee recommends a tentative increase in the 1944-45 budget of \$12,000.

The Committee recommends that it be allowed more time to study this report and asks for the authority to make recommendations at a later date to the Council and the House

of Delegates.
"Each Councilor shall receive a copy of the report and shall call a meeting of the delegates of his Councilor District to discuss the report. The Committee feels that the operation of this plan if adopted depends on its being thoroughly understood by the membership."

This was discussed by Drs. Mantz, Smith, Thompson, Denny, Goodrich, Bristow, Hyndman, Bohrer, McAlester, Bloom and Peden.

The report was accepted with the exclusion of the tentative increase in the budget.

It was agreed that the Council should meet on January 30 prior to which time each would receive a copy of the public relations program and study it.

It was suggested that Councilors contact delegates to the Annual Session concerning the program prior to the Annual Session provided the program is adopted.

Upon motion by Dr. Mantz the following committee was appointed with power to act in regard to the Constitutional Convention: Drs. Mantz, McAlester and Bristow.

Dr. Robert Mueller reported a recent meeting in St. Louis with representatives from the offices of the Surgeons General of the Army, Navy and Public Health Service and Procurement and Assignment Service. The Army has expressed a need for 3,000 more physicians and the Navy for 3,000. The following statistics on physicians in practice in Missouri at present was given:

	Under 38	38-45	45-65	65-70
St. Louis	178	220	710	222
Kansas City	54	101	329	45
Outstate		103	465	185
There are 877 physician	ns more than	70 years	of age	in the

The Council adjourned to meet January 30.

Meeting of January 30, 1944

The Council met at the Coronado Hotel, St. Louis, at 9 a. m., January 30, the Chairman, Dr. W. A. Bloom, presiding. Those present were Drs. A. S. Bristow, Princeton; H. B. Goodrich, Hannibal; Joseph C. Peden, St. Louis; R. B. Denny, Creve Coeur; W. A. Bloom, Fayette; R. W. Kennedy, Marshall; H. L. Mantz, Kansas City; Wallis Smith, Springfield; Paul Baldwin, Kennett, Councilors; A. W. McAlester, Jr., Kansas City, President; R. L. Thompson, St. Louis, Secretary-Editor; C. E. Hyndman, St. Louis, Treasurer; M. Pinson Neal, Columbia, Chairman, Postwar Planning Committee; R. E. Schlueter, St. Louis; James R. McVay, Kansas City; W. L. Allee, Eldon; A. R. McComas, Sturgeon, Delegates to the American Medical Association and Advisory Members of the Postwar Planning Committee; H. L. Kerr, Crane, Chairman, Committee on Rural Medicine; C. H. Neilson, St. Louis, Chairman, Committee on Postgraduate Course; Carl F. Vohs, St. Louis, Chairman, Committee on Medical Economics; Robert Mueller, St. Louis, member of the Postwar Planning Committee; E. C. Ernst, St. Louis, President, St. Louis Medical Society; Frank M. Grogan, St. Louis, Hospital Commissioner; Mr. Raymond McIntyre, St. Louis, Executive Secretary.

The Executive Secretary read a letter from Col. W. L. Gist, State Medical Officer of Selective Service System, thanking the members of the Association who have served as examining physicians on Selective Service Boards and on various medical advisory boards.

Letters from the following Congressmen in answer to the resolution sent by the Council on the Wagner-Murray-Dingell bills were read: C. Jasper Bell, Max Schwabe, Wat Arnold, Louis E. Miller, Orville Zimmerman, Wm. C. Cole, Marion T. Bennet, Roger C. Slaughter, Clarence Cannon, John J. Cochran, Bennett Champ Clark. The Executive Secretary was instructed to send a list of physicians in the First Councilor District to Congressman Wat Arnold as requested in his letter. The Executive Secretary was instructed to send copies of the letters to the A. M. A. Committee on Medical Service and Public Relations.

The Executive Secretary announced that seventeen Honor Members had paid the assessment voluntarily. The following committee to submit a budget was appointed: Drs. Goodrich, Kennedy and Smith.

Dr. Thompson pointed out that the Constitution and By-Laws were not clear on the period which the budget covered, from January to January or from Annual Session to Annual Session.

Dr. Smith stated that Taney County would soon be reorganized.

Dr. Peden gave the following report for the committee of the Council on Endowments which was adopted:

"It is the opinion of the Committee, appointed for the purpose of studying and recommending ways and means of establishing endowments to be held and administered by the Missouri State Medical Association that a standing Committee to be known as the Endowments Committee be created. This will require an amendment to the By-Laws.

"It is suggested by the Committee that the President and Treasurer of the Association be ex-officio members of the Endowments Committee. It is further suggested that this addition to the By-Laws, in outlining the duties of this Committee, contain the stipulation that:

'1. The Endowments Committee acting with the officers of

a trust company to be selected by the Council at its meeting during the Annual Session of the Association shall consider methods for depositing, investing and administering the funds and shall advise the Council on these matters.

"2. The trust company selected by the Council shall attend to the routine business of administering the funds.

"3. Any plan affecting the disposition of the principal of the Endowment Funds, other than regular investment, shall be subject to the following procedure, to with It shall be

be subject to the following procedure, to-wit: It shall be presented to the Council and after due consideration it shall be referred to the House of Delegates for approval, when it shall be returned to the Council which, upon review, shall report it back to the House of Delegates for final action. All of this can take place at the first and last meetings of the House of Delegates at its Annual Session.

"4. This By-Law shall not be suspended, amended or altered, except by a four-fifths affirmative vote in the manner

"It is further suggested that an attempt be made by the Endowments Committee, if established, to obtain endowments for specific purposes and one of the purposes suggested is, 'For the advancement of scientific education and research.'"

Dr. Mantz read the following Section which it is understood is to be presented to the Constitutional Convention: "Public Welfare. Section 1. The General Assembly shall provide for public health and sanitation, social security, public parks and recreation, pensions and retirements and shall establish and adequately maintain such educational, charitable, reformatory and penal institutions as the public welfare may require. Until otherwise provided by law, all existing public boards dealing with these subjects shall be maintained." The Public Health Committee will recommend that all proposals regarding health "do not pass" and offer this as a substitute. Upon action by Dr. Mantz this was approved and the Committee given the approval of the Council.

Dr. Peden brought up the subject of Missouri license being a requirement for membership in a component society. After discussion by Drs. Baldwin, Thompson, Neilson and Peden, the Council interpreted the Constitution and By-Laws to mean that a member must be licensed in Missouri, this not to be retroactive.

Dr. Goodrich discussed the interpretation of the Premarital Examination bill and pointed out the reflection it had had on the medical profession in some cases. He explained that Dr. Stewart had interpreted the bill that physicians must take the blood but the Attorney General's interpretation was that a laboratory could do so. Dr. Mantz suggested that the recorders of deeds have a list of physicians who would take the blood without charge. Dr. Neal pointed out that a positive serology test was not a correct basis for a diagnosis and that the applicant should be seen by a physician for primary lesions. On motion this matter was referred to the Committee on Control of Venereal Disease.

Dr. Mantz was called upon to open the discussion on

a public relations program.

He moved that the Council approve the program in principle as submitted by Mr. Thomas Parry and recommend his employment and budget provision for the program.

This was discussed by Drs. Neal, McVay, Vohs, Neilson, Kerr, Goodrich, Peden, McComas, Kennedy, Baldwin, Hyndman, McAlester, Bristow and Mantz.

Upon acceptance by Dr. Mantz of amendment to his motion, the following motion was passed: The Council of the Missouri State Medical Association shall approve a public relations program to the House of Delegates and recommend budget provision to provide for the successful operation of the work.

Dr. Mantz suggested that Mr. Thomas O'Brien be invited to the meeting of delegates to avoid calling

a second meeting.

The following budget was adopted with the reservation that it would need revision if a public relations program is adopted:

BUDGET FOR 1944

Salaries	12,000.00
Printing Journal	9,000.00
Public Policy	1,000.00

Defense	1,000.00
Postage	1,000.00
Postgraduate	1,000.00
Printing and Stationery	750.00
Traveling	500.00
Telephone and Telegraph	850.00
Rent and light	1,150.00
Meetings	5,000.00
Miscellaneous	700.00

\$33,950.00

W. A. Bloom, Chairman.

DR. W. A. BLOOM, FAYETTE, CHAIRMAN, reporting further, said: Two things came up in a meeting of the Council this morning. The Council approved an increase in the budget of \$14,000. That does not mean that the whole budget necessarily will be spent but if any kind of program is to be undertaken, there must be an increase. Therefore I move that this increase be approved.

Upon motion, duly seconded, this was approved.

Dr. Bloom: Another matter is a prepayment medical and surgical care plan for the Association. This was presented to the Council by a specially appointed committee, composed of Dr. Carl F. Vohs, St. Louis, Chairman; Dr. Ira H. Lockwood, Kansas City, and Dr. M. Pinson Neal, Columbia. The Council approved the plan and has asked Dr. Vohs to present it to the House of Delegates.

The report of the special committee of the Council on Prepayment Medical and Surgical Care, Dr. Carl

F. Vohs, St. Louis, Chairman, follows:

REPORT OF THE SPECIAL COMMITTEE OF THE COUNCIL ON PREPAYMENT MEDICAL AND SURGICAL CARE

The following data is respectfully submitted to the Council of the Missouri State Medical Association by the Special Committee appointed by the Chairman of the Council, Dr. W. A. Bloom, to investigate and recommend a prepayment medical and surgical care plan for adoption by the Council and House of Delegates of the Missouri State Medical Association:

I. This plan of medical care is to be on a cash indemnity basis, payable direct to the physician rendering the service. It is to be nonprofit in nature and is to be known as Missouri Medical Service, Inc. It is to cover medical and surgical care for hospitalized cases only. It seeks to adopt the principles of all budgeting devices, viz., to spread the cost of unpredictable hazards over a large group at a predictable rate suited to the incomes of the participants of the plan. It seeks to offer a method of accomplishing the purpose as a civic enterprise in similar fashion to Group Hospital Service, Inc., and to utilize the medical resources of the community as they exist, or as they may become, in the manner to which the community is accustomed.

II. The control should be vested in the State Medical Association through a Medical Board of Trustees representing the membership on a numerical basis. Upon this basis the state will be divided into six divisions as follows: City of St. Louis to comprise one division with eight representatives; Kansas City, one division with four representatives; and the remainder of the state to be divided into four divisions with two representatives from each. These members shall be elected by the various County Medical societies in each division.

This Medical Board of Trustees shall be the incorporating group in whose name a pro-forma decree charter shall be issued. There shall be two operating boards of trustees, one for the plan emanating from Kansas City and the other for the plan emanating from St. Louis. The number and membership of these boards shall be determined at a later date. There shall be a liaison board in each of the six divisions mentioned. composed of lay and professional people, whose duty it shall be to act in an advisory capacity.

III. Consistent with "free choice of physician," all

doctors licensed to practice medicine and acceptable to the committee on ethics and censors in each County Medical Society should be permitted to volunteer to serve the plan. Negro physicians must be members of the National Medical Association (no other control possible).

IV. The plan shall be made available according to basic enrollment procedure of Group Hospital Service but option should be given to take either or both of

V. Administrative Machinery. Economic acquisition will be made by using field secretaries of Group Hospital Service and other office routine, such as billing and collecting, in order to save on administrative ex-

penses.

If it is thought practicable and necessary by the organizing committee, an amount may be withheld from the physicians service fees (not exceeding \$100.00 in any event), and in no case shall the amount withheld exceed 50 per cent of the cash indemnity schedule in any one month. This amount or remaining part thereof will be paid to the physician or his estate when his contract with the organization is ended for any reason.

VI. The scope of medical service is contemplated to include everything except industrial injuries (Workmen's Compensation cases, etc.), accidents covered by other types of insurance held by the insured in this plan or by a responsible agent, or illness arising from chronic alcoholism and drug addiction. Monthly limits of service to be determined shall be placed upon the care of chronic illness developed after the patient has been in the plan for six months, such as tuberculosis, mental diseases, chronic cardiac conditions, chronic arthritis. Obstetric cases will be cared for after ten months membership; tonsils and adenoids after six months.

VII. The rate schedule for subscribers temporarily suggested by the committee is as follows: \$0.85 per month for single persons, \$2.25 per month for families.

The committee suggests that the details of the proposals, such as subscribers' rates, cash indemnity schedules, as well as restrictions, be developed and motivated by an organizational committee appointed and approved by the Council.

CARL F. VOHS, CHAIRMAN, IRA A. LOCKWOOD, M. PINSON NEAL.

Upon motion, duly seconded, this was referred to the Reference Committee on Resolutions.

Dr. Frank R. Bradley, St. Louis, introduced Mr. Graham L. Davis, Battle Creek, hospital consultant for the Kellogg Foundation, who addressed the House of Delegates.

Upon motion, duly seconded, it was voted to invited the Kellogg Foundation to make a survey of

hospital facilities in Missouri.

Appointment of Committee on Nominations

The President announced the appointment of the Committee on Nominations as follows:

Edwin C. Ernst, St. Louis, Chairman.

L. Paul Forgrave, St. Joseph. W. F. Francka, Hannibal. O. W. Koch, St. Louis.

J. L. Washburn, Versailles.

D. S. Long, Harrisonville. A. W. Altringer, Kansas City.

R. M. James, Joplin. T. W. Cotton, Van Buren.

W. O. Finney, Chaffee.

DR. RICHARD S. WEISS, St. Louis: I feel that it is necessary to present this situation to the House of Delegates of the Association as extremely embarrassing situations are being created by the misinterpretation of the Marriage Health Bill. The following excerpts from a letter written by Dr. Conrad, Chairman of the Premarital Blood Test Committee, gives the

position of the Missouri Social Hygiene Association in regard to this bill and the ruling of the Attorney General.

General.

"I noticed by the Globe-Democrat this morning (December 22, 1943) that you are requiring applicants for marriage licenses, under the new premarital blood test law, to apply to a physician to have this blood test done. I note that the Attorney General has ruled that the measure does not require applicants to consult a physician for these tests.

"The Attorney General's ruling is in complete agreement with the ideas of the Missouri Social Hygiene Association when that association sponsored the bill and asked to have it introduced in the Legislature. The bill states plainly that applicants for marriage licenses shall secure their certificates of negative serological tests from accredited laboratories and take them directly to the Recorder of Deeds. They need see a doctor only in cases where the test is positive. There is no reason why the many individuals with negative tests, who will secure marriage licenses in Missouri, should have to see a doctor unless they choose to do so. Many will see a physician. As a matter of fact, the majority of the certificates will be signed by a physician connected with the laboratory making the test.

"In a few words, the intention of the bill is to have serological tests for syphilis made by laboratories approved by the State Board of Health. If the result is negative, the individual will take the report to the Recorder of Deeds and secure a marriage license. If the report is positive, then

the State Board of Health. If the result is negative, the in-dividual will take the report to the Recorder of Deeds and secure a marriage license, If the report is positive, then the applicant for a marriage license must take it to a physician in order to secure certificate certifying him to

"We call your attention to this and request that you accept the opinion of Attorney General McKittrick."

Upon motion, duly seconded, this was referred to the Reference Committee on Medical Education and Public Welfare.

Dr. O. W. Koch, St. Louis: I wish to present a resolution which was adopted by the St. Louis County

Medical Society.

Our Committee on the Wagner-Murray-Dingell bill made a very detailed study of this proposed bill. After many, many weeks of study, we realized the complexity of the situation, particularly when we attempted to plan some method whereby we could avoid the bureaucracy proposed by the Wagner bill.

We arrived at a firm conviction that we must have

some foundation upon which we can build a strong defense. A defense not only against the Federal en-croachment, but one which would be gradually strengthened to encompass all state problems. A strong state-wide official organization, representing medical interest and thought would form the base for all future and present medical care, and would be controlled and guided by the medical profession. Such a basic organization is not controversial and is something we can all support. It is something that we can do now.

We feel that without such a basis, no plan for medical care will succeed. We shall need no changes in our present laws. It is within the scope of our present laws and would be a return of the powers and purposes of the Board of Health as set forth in the laws of the

State of Missouri.

If we now fail to establish such an organization, we may never again have the opportunity to establish and maintain the leadership in health matters that is rightfully ours. The Wagner bill is only a start. Most of us feel that this bill will not be passed. But it is only a forerunner of others. The general trend is toward a change in the present inadequate medical setup. There is too much division of authority in medical matters. Many lay boards have been given control of medical matters which should never have left the authority and care of our profession.

We propose that the State Board of Health be made the basic organization representing the medical interests and the health interests of our state. Our State Medical Association would present a panel of names of medical men who would really represent our interests. The Governor would select the five members of the Board from this list, adding thereto a dentist, a hospital administrator and a lay member. Then this Board of Health, through due process of law, would be made the official health organization responsible for all matters of health in our state. They should be given the authority to select a capable man who would be appointed by the Governor as Health Commissioner for the entire state. He would be responsible to the Board of Health in all medical matters. Relegating minor matters such as licensing barbers, beauticians, etc., to subcommittees, would permit the Board to concentrate upon the medical and other really important matters of public health, sanitation and preventive medicine, etc.

All this can be accomplished by a gentlemen's agreement with the candidates for Governor. For this is an idea that should appeal to everyone. It is progressive. It would prevent the encroachment of Federal government upon our state rights in the field of health.

Whereas, The provision for medical care through insurance schemes and government subsidy occupies great interest and seems inevitable; thereby calling for a well organized and centralized health jurisdiction within the State,

WHEREAS, There is a strong trend toward, and a steady development of Federal control of health matters, despite the fact that this is a sovereign right of the state as guaranteed by our Constitution verification.

fact that this is a sovereign right of the state as guaranteed by our Constitution, and WHEREAS, The Federal encroachment will be deleterious to public and professional welfare, unless we consolidate our health front, therefore be it Resolved, That the organized medical profession, through their state organization, make immediate approach to the candidates for Governor of the State of Missouri, to obtain their support of, and agreement to the organization and development of a strong representative, responsible State Board of Health. This Board is to be selected from a panel of names submitted by the Medical Association, the Dental Association and the Hospital Association of our state. Specifically, according to our present laws, this Board shall consist of five physicians, one dentist, one hospital administrator and one lay member who, ex officio, represents the public. the public. That such

ministrator and one lay member who, ex officio, represents the public.

That such Board of Health be empowered to select the best qualified person available for appointment by the Governor as Minister or Commissioner of Health and ex officio secretary of the Board.

That such Board of Health and Commissioner of Health through the proper course of law, gradually be given full control of all matters pertaining to the health of the people of Missouri for which government is responsible.

That such Commissioner of Health and the sovereign Board of Health to whom he is professionally responsible (the Board being responsible politically to the Governor), dispense with such minor functions as hairdresser, barber and beauticians and licensure to appropriate subcommittees and concern themselves solely with the important policies and decisions directly affecting the health of the people, the maintenance of proper Federal relations protecting the people and the profession from the unconstitutional inroads of bureaucratic control, and at the same time, making available through proper channels under strict State and adequate professional supervision the best that medical science has to offer in the prevention and cure of disease, and the maintenance of positive efficient health for the people of Missouri.

Upon motion, duly seconded, this was referred to the Reference Committee on Miscellaneous Affairs.

DR. A. W. ALTRINGER, KANSAS CITY: I would like to introduce a resolution from the Jackson County Medical Society.

Whereas, The report of the Public Relations Committee recommends that the House of Delegates approve establishing a

ommends that the House of Delegates approve establishing a public relations program, and WHEREAS, The success of such a program will require planning, direction, supervision and guidance by a public relations counsel who has had training and experience in such work, therefore be it Resolved, That the Council employ a public relations counsel as provided by the authority and privileges vested in the Council by the provisions of Chapter VI, Section 12, of the By-Laws, and be it further Resolved, That the Council is hereby authorized to enter into and/or make such contracts and/or authorize such expenditures and/or add or subtract from any designated items in any adopted budget or make expenditures not hereinbefore set out in any adopted budget; which in the opinion of the Council expressed by its majority vote may be necessary for the successful furtherance and presentation of such a public relations program.

Upon motion, duly seconded, this was referred to the Council.

Dr. H. M. GILKEY, KANSAS CITY: You have heard the report of the Committee on Public Relations. I wish to offer the following resolution.

 $$\operatorname{Whereas}$$, The report of the Public Relations Committee recommends the employment of additional executive office personnel, therefore be it

Resolved, That this House of Delegates authorizes and directs the Council to employ, as provided in Chapter VI, Section 12, an Executive Secretary and such other employees that the Council determines are necessary, and be it further Resolved, That the Council is empowered to employ such personnel notwithstanding the provisions which may be set

out in any adopted budget pertaining to salaries, and be it

Resolved, That any such changes in the adopted budget may be made by the majority action of the Council either in a meeting of the Council or by mail ballot through the Chairman, but must be submitted for approval of the House of Delegates at the next succeeding Annual Session.

Upon motion, duly seconded, this was referred to the Council.

DR. E. E. GLENN, SPRINGFIELD: I would like to offer a resolution.

WHEREAS, It appears that the problem of tuberculosis control is one that is increased in time of war, and WHEREAS, Tuberculosis is no respector of geographical boundaries, and WHEREAS, The problem of supervision and care of the migratory tuberculous patient is becoming more acute due to the movement of populations at the present time, and may be anticipated to be even greater in the period of industrial conversion, and WHEREAS, The returned tuberculous veteran of the Armed Forces is anticipated as an additional burden to the control machinery, and

Forces is anticipated as an additional burden to the control machinery, and

Whereas, Existing public and private health machinery is already overtaxed, and

Whereas, A method of implementation of the Tuberculosis Control Section of the United State Public Health Service has been made in the form of proposed congressional action and appropriation approved by the National Tuberculosis Association and

tion and appropriation approved by the National Tuberculosis Association, and Whereas, The state and territorial health officers have approved the proposition, and Whereas, The Tuberculosis Committee of the Missouri State Medical Association has approved this legislation, therefore be it Resolved, That the House of Delegates of the Missouri State Medical Association shall approve this resolution and shall instruct its delegates to the American Medical Association to request that body to also approve and recommend the passage of Senate Bill 1851 and H. R. 4615 and urge the Congress of the United States to enact these bills into law and be it further Resolved, That the Representatives and the Senators of the

Resolved, That the Representatives and the Senators of the State of Missouri be informed of this approval and be urged

to vote favorably.

Upon motion, duly seconded, this resolution was adopted.

DR. W. M. KETCHAM, KANSAS CITY: I have a resolu-

Whereas, The Public Relations Committee has recommended in its report that a four-year school of medicine be established by the University of Missouri, and Whereas, This will provide more Doctors of Medicine for the people in rural areas of Missouri, and Whereas, The City of Kansas City has offered the physical properties of the Municipal Hospital for teaching purposes, and

WHEREAS, Many patients are available for clinical study,

and
WHEREAS, This has been endorsed editorially by the public press in Kansas City, and
WHEREAS, The Jackson County Medical Society has offered its Medical Library for the use of the school and has officially approved the proposal, and
WHEREAS, Sufficient competently trained practicing Doctors of Medicine are available in Kansas City to provide the required professors and instructors, therefore be it
Resolved, That the Missouri State Medical Association reapprove the immediate establishment of a four-year school of medicine of the University of Missouri of which the last two years shall be at Kansas City, Missouri, and be it further

Resolved, That a copy of this resolution be sent to each member of the Board of Curators of the University of Missouri, and that a copy be sent to each member of the State Legislature after he has been duly elected and qualified in the election of the year 1944.

Upon motion, duly seconded, this was referred to the Reference Committee on Medical Education and Public Welfare.

DR. EDWIN C. ERNST, St. Louis: I move that the Missouri State Medical Association invite the American Medical Association to hold its 1947 Session in St.

Upon second, the motion was passed.

DR. F. G. MAYS, WASHINGTON: I have the following resolution

WHEREAS, The program now in operation for maternal and infant care for wives and infants of enlisted men in the four lower grades is unsatisfactory to the medical profession, and in many instances to the enlisted men and their families, and and

Whereas, The emergency provisions for the carrying on of the program as now in operation expire June 30, 1944,

be it therefore Resolved, That the Council and House of Delegates of the Missouri State Medical Association recommend that the medical profession cooperate with the present program until its expiration date on June 30, 1944, but also urge Congress to abandon the program as now constituted on that date, and be it further Resolved, That under any new program after June 30, 1944, the benefits be designated supplemental aid and take the form of an allotment for medical, hospital, maternity and infant care, similar to the allotments already provided for the maintenance of dependents, leaving the actual arrangements

mainteance of dependents, leaving the actual arrangements with respect to fees to be fixed by mutual agreement between the enlisted man and the enlisted man's wife and the physician of her choice, and be it further Resolved, That the American Medical Association be urged

to present to the appropriate committees of Congress a concrete plan embodying this principle, to the end that the present and ultimate best interests of the wives and infants of men in service be served during the present emergency, and be it further

Are solve duriner Resolved, That the members of the Missouri State Medical Association will render medical service to the wives and children of enlisted men in the four lower grades for the period of the war emergency regardless of the final decision by Congress or the Children's Bureau as to the method of

Upon motion, duly seconded, this was referred to the Reference Committee on Resolutions.

Upon motion, duly seconded, it was voted that the following members be recommended for affiliate Fellowship in the American Medical Association: Drs. Roland Hill, St. Louis; Robert L. Neff, Joplin; Everett Powers, Carthage; M. G. Seelig, St. Louis; Andrew L. Skoog, Kansas City; Kate C. Spain, St. Louis.

Dr. Edwin C. Ernst, St. Louis, invited the Association to meet in St. Louis in 1945. The invitation was accept-

ed unanimously.

On motion, duly seconded, the House of Delegates adjourned.

Tuesday, April 25, 1944—Second Meeting

The House of Delegates convened at 2:00 p.m., April 25, with the Speaker, Dr. W. F. Francka, Hannibal, presiding.

The Committee on Credentials reported a quorum

present.

On motion, duly seconded, the reading of the minutes of the previous meeting was dispensed with.

Dr. Morris B. Simpson, Kansas City, read the report of the Reference Committee on Constitution and By-

REPORT OF THE REFERENCE COMMITTEE ON CONSTITUTION AND BY-LAWS

Amend Chapter V, Section 1, which reads: Section 1. The President shall preside at all meetings of the Association and the House of Delegates until its Speaker is chosen and shall appoint all committees not otherwise provided for; he shall deliver an annual address at such time as may be arranged and shall perform such other duties as custom or parliamentary usage requires. He shall be the real head of the profession of the state during his term of office, and as far as practicable, shall visit, by appointment, the various sections of the state and assist the Councilors in building up the county societies and in making their work more practical and useful. to read as follows:

Section 1. The President shall preside at all meetings of the Association and the House of Delegates, if the duly elected Speaker or Vice Speaker is not present, until its Speaker is chosen and shall appoint all com-mittees not otherwise provided for; he shall deliver an annual address at such time as may be arranged and shall perform such other duties as custom or parliamentary usage requires. He shall be the real head of

the profession of the state and assist the Councilors in building up the county societies and in making their work more practical and useful.

Upon motion, duly seconded, this was adopted.

Amend Chapter VII by adding a new section: Section 17. There shall be a Committee on Endow-

ments appointed by the Chairman of the Council. The President and the Treasurer of the Association shall be ex officio members. The Committee shall have full authority and control of the endowment funds of the Association and shall submit an annual report of the income and disbursements for the consideration and approval of the Council. The report of the Committee on Endowments and the Council action pertaining thereto shall be included in the report of the Council to the House of Delegates.

Upon motion, duly seconded, this was adopted.

Amend Chapter VIII, Section 1, which reads:

Section 1. The annual dues shall be \$8.00 and shall be levied per capita on the members of the component societies of the Association, provided that for the first four years subsequent to graduation the annual dues shall be one half of the regular dues with all the privileges of active membership in the Association. Dues shall be payable on or before January 1 of the year for which they are levied. One dollar of the annual dues shall be credited to subscription to The Journal for one year. The secretary of each component society shall cause to be collected and shall forward to the offices of the Association the dues and assessments for its members, together with such data as shall be required for a record of its officers and members. Any member whose name has not been reported for enrollment and whose dues have not been remitted to the Secretary of this Association on or before April 1 shall stand suspended until his name is properly reported and his dues for the current year are paid. (As amended 1928, 1934.)

by adding:
"On December 31 of each year members delinquent in amount of dues or assessments, or any part thereof, shall ipso facto forfeit their membership.

Upon motion, duly seconded, this was adopted. Amend Chapter VI, Section 7, which reads:

Section 7. The Council shall provide for and superintend the issuance of all publications of the Association including proceedings, transactions and memoirs, and shall have authority to appoint an Editor and such assistants as it deems necessary. It shall prescribe the methods of accounting and through a committee of three of its members, to be known as a Committee on Auditing and Appropriations, shall audit all accounts of this Association. The Council shall adopt an annual budget providing for the necessary expenses of the Association which shall be prepared and presented for its consideration by the Committee on Auditing and Appropriations at the first meeting of the Council in November of each year, and submit a complete and detailed report to the component county medical societies as provided in Section 9, Chapter III. The Council shall submit an annual report to the House of Delegates which shall specify the character and cost of the publications of the Association, the amount and character of all its property, and shall provide full information concerning the management of all affairs of the Association which the Council is charged to administer. (As amended 1934.)

to read as follows:

Section 7. The Council shall appoint an Editor of the Journal, manage and control the publications and the business affairs of the Association as provided by the Constitution and By-Laws, and shall have such other duties as may be designated by the House of Delegates. The Council shall submit by publication in the April Journal of the Association a complete report of its proceedings, including a report of all monies received and expended and/or disbursed during the

year, and a recommended detailed budget for the year ensuing from the close of the Annual Session for the approval of the House of Delegates.

Upon motion, duly seconded, this was not adopted. Upon recommendation of the Reference Committee, the amendment of Chapter VIII, Section 1, changing the amount of the dues from \$8.00 to \$15.00, upon motion, duly seconded, was not adopted.

Upon motion, duly seconded, the report of the Reference Committee was adopted.

Dr. W. S. Sewell, Springfield, read the report of the Reference Committee on Resolutions.

REPORT OF THE REFERENCE COMMITTEE ON RESOLUTIONS

Upon motion, duly seconded, the report of the special committee on Prepayment Medical and Surgical Care was adopted with the instruction that the Council institute the program at the earliest possible time.

Upon motion, duly seconded, the following resolution

was adopted:

Resolved. That the recommendations of the Committee on Public Policy and Public Relations be approved in general as submitted, and be it further Resolved, That the Council choose the time to activate

those portions upon which they agree.

Upon motion, duly seconded, the resolution on Maternal Welfare was adopted with the instructions that the Delegates to the American Medical Association introduce the resolution at the next session of that body.

Upon motion, duly seconded, the following resolution

was adopted:

Whereas, The contemplated program of the Missouri State Medical Association cannot be performed with the present income, be it Resolved, That an assessment not to exceed \$7.00 be levied on each active member of the Missouri State Medical Association for the year 1945 and that the Council be authorized to designate the amount.

Upon motion, duly seconded, the report of the Reference Committee on Resolutions was adopted.

Dr. R. M. James, Joplin, gave the report of the Reference Committee on Medical Education and Public Welfare.

REPORT OF REFERENCE COMMITTEE ON MEDICAL EDUCATION AND PUBLIC WELFARE

Upon recommendation of the Committee, on motion and second, the material on the Marriage Health Bill was referred to the Committee on Control of Venereal Disease

The Committee did not act on the matter of the fouryear medical school because the Council had previously

taken action.

Upon motion, duly seconded, the report of the

Reference Committee was accepted.

Dr. Armand D. Fries, St. Louis, read the report of the Reference Committee on Miscellaneous Affairs.

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS AFFAIRS

The Committee, after due consideration of the plan for a State Organization for Health, as submitted, decided that while Utopian in character, it possesses such impractical features that the Committee advises its rejection.

Upon motion, duly seconded, this resolution was not

adopted.

Upon motion, duly seconded, the report of the Ref-

erence Committee was adopted.

The minutes of the Council meeting of April 24 (page 154) were read and approved. Lt. Col. William S. Keller, M.C., Senior Surgeon

Reserve, Medical Officer, Fifth, Sixth and Seventh Corps Areas, Civilian Defense, spoke briefly recommending that medical equipment used in civilian defense work ultimately be retained by the medical profession.

Upon motion, duly seconded, this was referred to the Committee on Postwar Planning.

Mr. Lawrence M. Hyde, Associate Justice, Missouri State Supreme Court, addressed the House of Dele-

Nomination of President-Elect

Dr. L. Paul Forgrave, St. Joseph, nominated Dr. Arthur S. Bristow, Princeton, for President-Elect.

On motion, duly seconded and carried, the Speaker was instructed to cast the unanimous ballot of the House of Delegates for Dr. Arthur S. Bristow, Princeton, for President-Elect.

Dr. Bristow was escorted to the platform by Drs. H. B. Goodrich, Hannibal; H. L. Mantz, Kansas City, and W. A. Bloom, Fayette.

DR. ARTHUR S. BRISTOW, PRINCETON: Sometimes our emotions affect our behavior. I stand before you now the victim of mingled emotions. First, naturally, is my very deep appreciation of the honor that has been given me, the highest honor that the Missouri State Medical Association can confer. Then immediately comes a feeling of humility that such a democratic organization as this would go to the rural district to honor one of the rural doctors. Again, I deeply appreciate that honor. But I am not at all unmindful of the obligation that is mine in the times we are now facing. However, I am glad to be a member of a profession, the only profession that I am aware of in all the world, that works to destroy the basis for their living. I am very happy to acknowledge that this body, and like bodies in the United States, are more and more applying preventive medicine. I believe definitely in medicine. It has been my life and the life of my forefathers.

It is hard to come to a position of this kind. There are unseen things that at times would seem to promote animosity. I trust that no animosity may arise either to discredit or disrupt the unity of an organization of this kind. But I feel quite sure that nothing can cause disunity in this body. We read that faith is the substance of things not seen, of things we believe in. It is the element of the unseen that makes our organization what it is. It is for the unseen things that you have given me your confidence, and I trust I may be worthy of it. Mistakes will be made, but I trust the united contributions of this body will result, after all, in the greatest amount of good for all of us. Again I thank you and I trust I may be worthy of your confidence.

REPORT OF THE COMMITTEE ON NOMINATIONS

For Vice Presidents: Dr. Robert Mueller, St. Louis; Dr. F. T. H'Doubler, Springfield; Dr. W. L. Brandon, Poplar Bluff.

For Delegates to the American Medical Association: Dr. A. R. McComas, Sturgeon; alternate, Dr. Horace W. Carle, St. Joseph; Delegate, Dr. W. L. Allee, Eldon; alternate, Dr. C. A. W. Zimmermann, Cape Girardeau.

For Speaker of the House of Delegates: Dr. E. J. Schisler, St. Louis; Vice Speaker of the House of Delegates, Dr. Stanley P. Howard, Jefferson City.

On motion, duly seconded, these officers were de-clared elected with exception of alternate delegates to the American Medical Association. Upon nominations from the floor Drs. M. Pinson Neal, Columbia, and W. A. Bloom, Fayette, were elected alternate delegates.

The Speaker reported the results of the election of Councilors as follows:

First District......Dr. H. E. Petersen, St. Joseph. Third District......Dr. W. J. Thompson, St. Louis. Ninth District......Dr. E. C. Bohrer, West Plains.

Upon motion, duly seconded, Dr. Curtis H. Lohr, St. Louis, was installed as President of the Association in absentia.

Upon motion, the House expressed their appreciation of Dr. Lohr by saluting the flag under which he is serving.

Dr. Robert Mueller, St. Louis, read a message from Dr. Lohr which was written in North Africa on April 9, 1944. (Published in the June issue of The Journal.)

On motion, duly seconded, a vote of thanks was extended to the Jackson County Medical Society for its hospitality and courtesy during the Session.

On motion, duly seconded, the House of Delegates adjourned sine die.

MEETING OF THE COUNCIL

Muehlebach Hotel, Kansas City Monday, April 24, 1944

The Council met at 8:00 a. m. at the Muehlebach Hotel, Kansas City, April 24, Dr. W. A. Bloom, Fayette, Chairman, presiding. Those present were Drs. A. S. Bristow, Princeton; H. B. Goodrich, Hannibal; Joseph C. Peden, St. Louis; R. B. Denny, Creve Coeur; W. A. Bloom, Fayette; R. W. Kennedy, Marshall; H. L. Mantz, Kansas City; Wallis Smith, Springfield; E. C. Bohrer, West Plains; Paul Baldwin, Kennett; A. W. McAlester, Jr., Kansas City; R. L. Thompson, St. Louis; C. E. Hyndman, St. Louis.

A resolution instructing the Council to employ a public relations counsel was amended to read "The Council be authorized to employ" and referred back to the House of Delegates with the recommendation

that it be passed.

The Council considered a resolution referred to it by the House authorizing the Council to employ an Executive Secretary and such personnel as it deemed necessary. It was decided to recommend to the House of Delegates that this not be adopted because the Council already has these powers and further authority is not necessary.

The following auditing committee was appointed: Drs. R. W. Kennedy, Paul Baldwin and R. L. Thomp-

Dr. H. L. Mantz suggested that Past Presidents be presented a key with the seal of the Association. The Council approved.

The Council voted to create the office of Business

Manager.

The New Madrid County was granted a charter.

Tuesday, April 25, 1944—Second Meeting

The second meeting of the Council convened April 25 following the final meeting of the House of Delegates, with Dr. W. A. Bloom, Fayette, presiding. Those present were Drs. H. B. Goodrich, Hannibal; J. Wm. Thompson, St. Louis; R. B. Denny, Creve Coeur; W. A. Bloom, Fayette; R. W. Kennedy, Marshall; H. L. Mantz, Kansas City; Wallis Smith, Springfield; E. C. Bohrer, West Plains; Paul Baldwin, Kennett, and A. S. Bristow, Princeton.

The election of officers for the year resulted as follows: Secretary-Editor, Dr. R. L. Thompson, St. Louis; Treasurer, Dr. C. E. Hyndman, St. Louis; Assistant Editor. tor and Business Manager, Helen Penn; Chairman of the Council, Dr. W. A. Bloom, Fayette; Vice Chairman, Dr. H. B. Goodrich, Hannibal.

Dr. Robert Mueller, St. Louis, Vice President, was

selected to serve in the place of the President. The following committee to activate the prepay-

ment medical and surgical care program was appointed: Drs. Carl F. Vohs, St. Louis, Chairman; Ira H. Lockwood, Kansas City; M. Pinson Neal, Columbia; Frank L. Feierabend, Kansas City; H. B. Goodrich, Hannibal. The Council voted to authorize the committee to proceed with the plan.

The auditing committee reported that they approved

the Treasurer's report.

The following committee was appointed to report recommendations concerning an Executive Secretary: Drs. Mantz, Thompson and Goodrich.

On motion the Council adjourned sine die.

MINUTES OF THE GENERAL MEETING

Monday, April 24, 1944-Morning Session

Heart and Hypertension:

Etiology of Hypertension, Peter Heinbecker, M.D., St. Louis.

The Heart in Hypertension, Drew Luten, M.D., St.

Management of the Hypertensive Patient, Edward Massie, M.D., St. Louis.

Psychogenic Factors in Hypertension, A. Morris Ginsberg, M.D., Kansas City.

A Simple View of the Hypertension Question, Col. John T. King, M.C., Washington, D. C.

Abdominal Incisions, Henry K. Ransom, M.D., Ann

Arbor, Michigan.

Monday, April 24, 1944—Afternoon Session

Cardiac Disorders in an Army General Hospital, Col. John T. King, M.C., Washington, D. C.

Preoperative and Postoperative Care and Complications:

Nutritional Problems, Roland S. Kieffer, M.D., St. Louis.

Special Problems of Poor Surgical Risks, Especially Age, William B. Kountz, M.D., St. Louis.

Selection of the Anesthetic, Charles F. Sherwin, M.D., St. Louis.

Postoperative Complications, Henry K. Ransom, M.D., Ann Arbor, Michigan.

Tuesday, April 25, 1944—Morning Session

Traumatic Surgery:

Back Injuries, Frank D. Dickson, M.D., Kansas City. Soft Tissue Wounds, Eugene O. Parsons, M.D., Kansas City.

Burns, Vincent T. Williams, M.D., Kansas City. Roentgen Ray Findings, C. Edgar Virden, M.D. Kansas City.

Diabetes:

Wm. H. Olmsted, M.D., St. Louis, Moderator.

Experimental Diabetes, Donald R. Black, M.D., Kansas City.

Guiding Principles in Use of Diet, B. Y. Glassberg, M.D., St. Louis.

Use of Slow Acting Insulin, Fred Irwig, M.D., Kansas City.

Diabetic Gangrene, B. L. Myers, M.D., Kansas City. Gastroduodenal Lesions:

Medical Aspects, Delon A. Williams, M.D., Kansas City.

Surgical Treatment, Claude J. Hunt, M.D., Kansas City.

Roentgen Ray Findings, I. H. Lockwood, M.D., Kansas City

Abnormal Obstetrics:

Buford G. Hamilton, M.D., Kansas City, Moderator. Theodore H. Aschman, M.D., Kansas City. George F. Pendleton, M.D., Kansas City. Joseph G. Webster, M.D., Kansas City.

SECRETARIES AND PRESIDENTS DINNER

Sunday, April 23, 1944—Muehlebach Hotel

Secretaries and Presidents of County Medical Societies and officers of the Association were guests of the Association at a dinner on Sunday evening, April 23, in the Trianon Room, Hotel Muehlebach, Dr. S. R. McCracken, Excelsior Springs, presiding.
Address of Welcome, A. W. McAlester, Jr., M.D.,

Kansas City. Postwar Planning, M. Pinson Neal, M.D., Columbia.

Open Discussion.

COMMITTEE ON STUDY OF CARDIAC DISEASES DINNER

Sunday, April 23, 1944-Muehlebach Hotel

The Committee on Study of Cardiac Diseases held a dinner meeting Sunday evening, April 23, in the Ballroom, Hotel Muehlebach, Dr. J. DeVoine Guyot, Jefferson City, presiding.

Neurocirculatory Asthenia, Col. John T. King, M.C.,

Washington, D. C.

New Developments in the Public Health Aspect of Rheumatic Fever, Hugh McCulloch, M.D., St. Louis.

COMMITTEES ON MATERNAL WELFARE AND INFANT CARE LUNCHEON

Monday, April 24, 1944—Muehlebach Hotel

The Committees on Maternal Welfare and Infant Care held their annual meeting in the Trianon Room, Hotel Muehlebach, April 24, Dr. E. Lee Dorsett, St. Louis, presiding.

Emergency Maternal and Infant Care Program, W. W. Bauer, M.D., Chicago, and M. L. Gentry, M.D., Jeffer-

son City.

BANQUET IN HONOR OF PAST PRESIDENTS

Monday, April 24, 1944—Hotel Muehlebach

The annual Banquet, tendered to the Past Presidents of the Association, was held in the Ballroom, Hotel Muehlebach, at 7:00 p. m., April 24, 1944, the President, Dr. A. W. McAlester, Jr., Kansas City, presiding.

Address of Welcome, Harry L. Jones, M.D., Kansas

City.

Address of the President, A. W. McAlester, Jr., M.D., Kansas City.

Introduction of Past Presidents of the Missouri State

Medical Association.

The Position of Medical Education in Federalized Medicine, Rev. Father Alphonse M. Schwitalla, S.J., St. Louis.

The American People, What They Think About Doctors, Medical Care and Prepayment Plans, John M. Pratt, Chicago.

MISSOURI STATE MEDICAL ASSOCIATION REGISTRATION AT EIGHTY-SEVENTH ANNUAL SESSION

First Councilor District
—45
Bales, Eugene L., Carrollton
Bauman, Henry C., Fairfax
Bauman, Louis C., St. Joseph
Bloomer, Gaylord T., St. Jo-

seph
Brewer, Lake, Ridgeway
Bristow, A. S., Princeton
Broyles, W. A., Bethany
Buehrer, Cletus E., Lawson
Byrne, John I., St. Joseph
Calvert, Lewis C., Weston
Carle, Horace W., St. Joseph
Carpenter, George W., Chillicothe

seph

Carpenter, George
cothe
Cook, Thomas F., Richmond
Crowson, Egbert, Parnell
Dowell, George S., Braymer
Duff, T. S., Cainsville
Durham, S. L., Dearborn
Fisher, Joseph L., St. Joseph
Forgrave, L. Paul, St. Joseph
Senh

Fuson, William A., Trenton Gilliland, Alvin O., Cameron Goodson, William H., Liberty Greene, L. D., Richmond Grimes, M. E., St. Joseph Hobbs, Earl B., Smithville Humberd, Charles D., Barn-

Johnson, Glenn D., Maysville McCracken, S. R., Excelsion

McCracken, S. R., Excelsior Springs
McGlothlan, A. B., St. Joseph Moore, W. Roger, St. Joseph Parker, John Z., Pattonsburg Perry, John M., Princeton Peters, Melvin L., Cameron Petersen, H. E., St. Joseph Pickett, C. P., Princeton Robichaux, E. C., Excelsior Springs

Springs
Ross, Pren J., Grant City
Simpson, S. E., Stanberry
Spalding, W. B., Plattsburg
Wadlow, Ernest E., St. Joseph

Warren, W. L., Gilman City Webb, J. Warner, Jr., North Kansas City Werner, C. H., St. Joseph Wilson, Virgil R., Rosendale Wortley, Cabray, St. Joseph

Second Councilor District

Andrae, Robert L., Louisiana Gilfillan, Earl E., Memphis Goodrich, Howard B., Hannihal

Grim, George E., Kirksville Hardy, J. W., Sumner Harlan, D. L., Clarence Herington, Warner, Gree

Jennings, P. W., Canton McArtor, Thomas R., Brown-

McCormick, F. L., Moberly Miller, Alfred F., Kirksville Miller, Howard S., Macon Putman, Ben, Marceline Smith, E. S., Kirksville Wood, A. M., Shelbina

Councilor District -59

Bradley, Frank R., St. Louis Burford, Cyrus E., St. Louis Dorsett, E. Lee, St. Louis Elliott, Robert W., St. Louis Ernst, Edwin C., St. Louis Fries, Armand D., St. Louis Glassberg, Bertrand Y., St. Louis

Gorrilla, Vincent, St. L. Louis

Gradwohl, R. B. H., St. Louis Gradwohl, R. B. H., St. Louis Grindon, Joseph, Jr., St. Louis Hammond, John J., St. Louis Hanser, Theo. H., St. Louis Heinbecker, Peter, St. Louis Henske, Andrew C., St. Louis Hines, Paul, St. Louis Holdenried, William E., St.

Hyndman, Charles E., St.

Jones, Andrew B., St. Louis Jorstad, Louis H., St. Louis Kelly, Charles A., St. Louis Kieffer, Roland S., St. Louis Keiffer, Roland S., St. Louis Klemme, Roland M., St. Louis Klenk, Charles L., St. Louis Klenk, Charles L., St. Louis Kountz, William B., St. Louis Leighton, W. E., St. Louis Link, Joseph J., St. Louis McCulloch, Hugh, St. Louis McCulloch, Hugh, St. Louis Moore, Neil S., St. Louis Morris, Mary E., St. Louis Murler, Robert, St. Louis Murley, J. P., Jr., St. Louis Murphy, J. P., Jr., St. Louis Nurphy, Paul, St. Louis Norton, William H., St. Louis Olmsted, William H., St. Louis Louis

Louis
Peden, Joseph C., St. Louis
Pernoud, F. G., St. Louis
Raemdonck, Alphonse J., St. Louis

Ramos, Raoul L., St. Louis Rosenbaum, Harry D., St. Louis

Sale, Llewellyn, St. Louis Schisler, Edwin J., St. Louis Schlueter, Robert E., St. Louis Schnoebelen, Paul C., Louis

Schwartzman, Bernard, St.

Sherwin, Charles F., St. Louis Shutt, C. H., St. Louis Spector, H. I., St. Louis Strauss, A. E., St. Louis Stryker, G. V., St. Louis Sweetman, Homer A., St. Louis

Tainter, Frank J., St. Louis Tess, Melvin J. H., St. Louis Thompson, J. W., Jr., St. Louis

Thompson, Ralph L., St. Louis

Vohs, Carl F., St. Louis Zeinert, Oliver B., St. Louis

Fourth Councilor District

Breckenridge, E. O., Maple-

Breckenridge, E. O., Maple-wood Brown, E. R., University City Creech, Joseph C., Troy Denny, R. B., Creve Coeur Finley, F. L., Overland Hayward, John D., Clayton Jensen, Julius, St. Louis Kemp, T. J., Clayton Kendis, Joseph B., St. Louis Killoran, John B., Wright City

Knabb, Frank P., Valley Park Koch, O. W., Ballwin Koch, R. E., Clayton McGavran, Edward G., Web-ster Groves

City

Massie, Edward, St. Louis Mays, F. G., Washington Neubeiser, Ben L., St. Charles O'Connell, John, Overland Reilly, Pierce J., St. Louis Reinhard, Edward H., Webster Groves

Stein, Harry J., St. Louis Steiner, Alexander J., St. Louis

Sterling, John A., Maplewood Strehlman, Benjamin G., Union

Vitale, N. S., Normandy Walther, R. A., Overland Westrup, A. W., Webster Groves Young, John S., Richmond

Heights

Fifth Councilor District

Ackerman, Lauren V., Co-

Ackerman, Lauren V., Columbia
Adams, C. Frederick, Jefferson City
Allee, W. L., Eldon
Blasko, J. J., Fulton
Bloom, W. A. Fayette
Burke, J. P., Jr., California
Conley, Dudley S., Columbia
Gentry, Merritt L., Jefferson
City

City
Gunn, Aubrey J., Versailles
Guyot, J. DeVoine, Jefferson
City Howard, Stanley P., Jefferson

City Jolley, J. Frank, Mexico Latham, K. S., California LeMone, David V., Columbia McComas, A. R., Sturgeon Maxey, Hugh W., Jefferson

Maxey, Hugh W., Jeneton. City Neal, M. Pinson, Columbia Nifong, Frank G., Columbia Overholser, Milton D., Co-

lumbia

Pope, Nathan K., Independence
Price, Robert P., Triplett
Robnett, Dudley A., Colum-

Shelton, Edward C., Eldon Stauffer, Harry B., Jefferson

City Stewart, James, Jefferson

Stewart,
City
Tate, Prentiss S., Fulton
Tate, Prentiss S., Fulton
Washburn, J. L., Versailles
Ziegler, William H., Boon-

Sixth Councilor District

Albers, Edward A., Pleasant Hill Allen, Claude J., Rich Hill Allen, William H., Nevada Bickford, W. M., Marshall Braecklein, William A., Higginsville

Campbell, A. J., Sedalia Davis, C. B., Nevada Douglas, Thomas H., Osceola Dyer, David P., Sedalia

Garner, L. M., Higginsville Hanks, Ralf, Nevada Hansen, Arthur L., Appleton

City Haynes, R. C., Marshall Hollingsworth, R. S., Clinton

Kennedy, Robert W., Marshall

Koppenbrink, Walter E., Higginsville Lawless, Charles L., Marshall Lockwood, W. E., Slater Lockwood, W. E., Slater Long, D. S., Harrisonville Lusk, C. A., Jr., Butler McBurney, C. A., Slater Nix, Winston K., Marshall Powers, John A., Warrensburg burg Robbins, Martin V., Peculiar Ryland, C. T., Lexington Sharp, William L., St. Louis Shy, Milton P., Sedalia Todd, T. B., Nevada Walker, George S., Clinton Walter, Archie L., Sedalia Wensley, John E., Harrison-

Seventh Councilor District -155Allen, Charles E., Kansas City Altringer, A. N., Kansas City Arms, A. V., Kansas City Aschman, Theodore H., Kan-sas City Asher, Arthur Graham, Kan-sas City Aull, John, Kansas City Bagby, Roland O., Kansas Baker, Wilbur A., Kansas City Beil, J. Wallace, Kansas City Bell, J. V., Kansas City Bergmann, Victor H., Kansas City
Black, Donald R., Kansas City
Boutros, Amin, Kansas City
Brainard, Benjamin F., Martin City
Brewer, Paul L., Kansas City
Broyles, Glen H., Kansas City Bryant, Homer L., Kansas Čity Buckingham, W. W., Kansas Cantrell, Cyrus D., Kansas Conover, C. C., Kansas City Counsell, Chester M., Kansas City
Dann, David S., Kansas City
DeWeese, E. R., Kansas City
Dickson, Frank D., Kansas Donaldson, Clyde O., Kansas Dwyer, H. L., Kansas City Edmundson, J. Phil, Kansas Elliott, B. Landis, Kansas Eubank, Ambrose E., Kansas Feierabend, Frank L., Kansas

City Feist, George V., Kansas City Ferguson, Eugene H., Kansas Ferris, C. R., Kansas City Ferster, William R., Kansas City Foster, Hal, Kansas City Ganley, William C., Kansas City Gestring, Hugh A., Kansas City Gibson, Edward T., Kansas

Gilliland, Oliver S., Kansas Ginsberg, A. M., Kansas City Glasscock, E. L., Kansas City Goldman, Max, Kansas City Goodson, William H., Jr., Kansas City

Gilkey, H. M., Kansas City Gilles, Clifford L., Kansas

City

Charles F., Inde-Grabske, pendence Grauerholz, James Wm., Kan-

sas City
Green. J. R., Independence
Hall, Thomas B., Kansas City
Hamilton, Buford G., Kansas

Hardacre, Ruth A., Kansas City Haynes, Solan E., Kansas City

Heller, Edward P., Kansas City Helwig, F. C., Kansas City Herrman, George V., Kansas

City
Hess, H. Lewis, Kansas City
Hodgson, F. H., Kansas City
Hoffmann, Robert L., Kansas

Hunt, Claude J., Kansas City Hunt, Paul F., Kansas City Hurwitt, Frank, Kansas City nurwitt, Frank, Kansas City Irwig, Fred, Kansas City Jackson, D. A., Kansas City Jansen, Robert, Kansas City Jennett, James Harvey, Kan-sas City

Jones, Harry L., Kansas City Jones, Maurice L., Kansas City Keeling, Irene C., Kansas

City Keith, Willis E., Kansas City Kelly, Eugene H., Kansas City Kennedy, John O., Kansas City Ketcham, William M., Kansas

Klepinger, Dayton P., Kan-

Koritschoner, Robert, Kansas Korth, William M., Kansas

City Krueger, Owen W., Kansas City

City
Kyger, Fred B., Kansas City
Kyner, Thomas A., Kansas
City
Lapp, Harry C., Kansas City
Lapp, John G., Kansas City
Leitch, C. G., Kansas City
Leitz, Frank B., Kansas City
Lemoine, Albert N., Kansas
City

City Lieberman, B. Albert, Kan-

sas City ink, Vance Eugene, Inde-Link, pendence Lockwood, Ira H., Kansas

City Lower, Mary J., Kansas City McAlester, A. W., Jr., Kansas

McCubbin, Clarence R., Kansas City McPherson, Owen P., Kansas

McVay, James R., Kansas City Major, Hermon S., Kansas

Mantz, Herbert L., Kansas Monahan, Elmer P., Kansas

City Myers, B. L., Kansas City Myers, J. L., Kansas City Myers, W. A., Kansas City Neff, Frank C., Kansas City Nunn, Pat M., Kansas City,

Kansas Kansas Oglevie, Rial R., Kansas City Owens, Hugh H., Kansas City Owens, M. J., Kansas City Padgett, Earl C., Kansas City Pakula, Sidney F., Kansas City City

Parsons, Eugene O., Kansas City Pendleton, George F., Kansas

City Petri, E. L., Kansas City Polk, George M., Independ ence Postlethwaite, F. M., Kansas

City Prentiss, Harry S., Kansas City

Quistgard, Paul C., Kansas City

Rader, Ada B., Martin City Rice, William, Kansas City Ridge, Frank I., Kansas City Rising, Jesse D., Kansas City Roberts, H. M., Kansas City Robinson, G. Wilse, Kansas City

Russell, Daniel R., Kansas City St. Clair, R. L., Kansas City Sanders, Clarence E., Kansas City Schorer, Edwin H., Kansas

City

Schutz, C. B., Kansas City Seely, Clark W., Kansas City Shapiro, Lazare M., Kansas

Simpson, Morris B., Kansas

Sinclair, Alexander B., Kan-sas City Singleton, J. Milton, Kansas City

Skinner, E. H., Kansas City Skoog, Andrew L., Kansas

Snider, Sam. H., Kansas City Stewart, Edward L., Kansas City Stowers, James E., Kansas

City Summers, Caldwell B., Kan-

sas City Tarson, Solomon S., Kansas

Teachenor, Frank R., Kansas City Teall, Raymond E., Kansas _ City

Thiessen, Edward H., Kansas City Thomason, Henry E., Kansas

City

Thym, Herman H., Kansas City Trippe, H. C., Kansas City Trowbridge, E. H., Kansas

City Valentine, Herbert S., Kan-

sas City Van Orden, Herbert F., Kan-

sas City Virden, C. Edgar, Kansas City Walker, James C., Kansas City

Walker, John W., Kansas City Walthall, Damon O., Kansas City Watson, Ethel, Independence

Webster, Joseph G., Kansas

Welker, Joseph E., Kansas City Whitman, Doyle C., Kansas

City Williams, D. A., Kansas City Williams, Vincent T., Kansas Withers, Orval R., Kansas

City Wyatt, Charles H., Kansas City

Eighth Councilor District

Beers, Ellsworth G., Seymour Belden, Edgar A., Kansas City Blanke, Otto T., Joplin Brasher, Charles A., Mt. Ver-

Bryan, E. M., Mt. Vernon Campbell, D. A., Neosho Cardwell, Clarence, Stella Coffman, Esther E. L., Mt.

Vernon Davis, Paul C., Neosho DeTar, B. E., Joplin Freeman, Samuel F., Spring-

field Glenn, Elmer E., Springfield Glover, Kenneth, Mt. Vernon Heimburger, L. F., Springfield

Hornback, Edward R., Joplin James, R. M., Joplin Kerr, H. L., Crane Laney, Roland L., Joplin McCraw, D. C., Bolivar Macdonnell, C. R., Marsh-fold

field
Newkirk, Richard C., Joplin
Newman, G. W., Cassville
Plummer, G. C., Buffalo
Reid, Charles T., Joplin
Sewell, W. S., Springfield
Smith, C. Souter, Springfield
Smith, Wallis, Springfield
Spears, C. A., Billings
Stocker, Jesse A., Mt. Vernon
Vinyard, Robert, Springfield
West, William M., Monett
Williams, J. W., Jr., Springfield field

Ninth Councilor District Bohrer, E. Claude, West Plains

Callihan, C. F., Willow Callihan, C. F., Willow Springs Cooper, Claude W., Thayer Cotton, T. W., Van Buren Crider, A. J., Dixon Dillman, L. M., Houston Gentry, Marvin C., Ava Harrell, Roosevelt E., Lebanon Mallette, Cyrus, Crocker Oliver, Everett A., Richland Ryan, R. A., Mountain Grove

Tenth Councilor District Allenstein, B. J., New Madrid Baldwin, Paul, Kennett Barron, W. H., Fredericktown Bugg, Andrew F., Ellington Bull, B. M., Ironton Finney, W. O., Chaffee Henrickson, Hardin M., Pop-lar Bluff lar Bluff

lar Bluff
Hoctor, E. F., Farmington
Kneibert, F. L., Poplar Bluff
Luten, J. B., Caruthersville
Miller, Herbert S., Sikeston
Mitchell, Samuel E., Malden
Ritter, R. A., Cape Girardeau
Shelby, Mitchell H., Cape

Girardeau Vaddle, Theodore L., Fred-Waddle, ericktown Welebir, Ferdinand, Bonne

Terre Wilkins, J. A., St. Marys Zimmermann, Carl A. W., Cape Girardeau

Gnest Speakers—5
Bauer, W. W., Chicago, Ill.
King, John T., Washington,
D. C. Pratt, John M., Chicago, Ill. Ransom, Henry K., Ann Arbor, Mich. Schwitalla, A. M., St. Louis

Visiting Doctors of Med-icine, Interns and Stu-dents—52 Anderson, E. G., Kansas City

Kansas Bowman, J. E., Philadelphia,

Bristow, R. B., Kansas City Brockett, Holly V., Kansas City Carreau, E. P., Kansas City,

Kansas Channell, R. C., Liberty Coffin, Helen K., Kansas City,

Coffin, Heren Kansas City, Kansas Colette, R. W., Kansas City, Kansas Coon, H. C., Kansas City, Crow, E. W., Kansas City, Vansas

Kansas Davidson, Oscar W., Kansas City, Kansas
Dehrlich, H., Liberty
DeVilbiss, E. F., Kansas City,

Kansas Evans, M. D., Kansas City,

Kansas Folck, W. P., Kansas City, Kansas

Frederick, M. F., Kansas City, Kansas Frey, Ch Kansas Charles T., Wichita,

Gardner, Paul E., New Hamp-

Gardner, Fast L., ton, Iowa Gilligan, J. P., Nebraska City, Nebraska Hand, A. M., Kansas City Hickerson, W. H., Kansas

Hufnagel, Charles J., Excelsior Springs Hunzicker, W. J., Kansas City,

Kansas Johnson, L. D., Chanute, Kansas

Johnson, Paul A., Grantsburg,

Wis.
Keller, Lt. Col. William S.,
Chicago, Ill.
Koven, A. L., Jefferson City

Lattimore, John L., Topeka, Kansas

Leamer, B. V., Kansas City Loeffler, A. J., Medford, Ore-

McEvoy, F. J., Royal Oak, Mich Montell, F. J., Excelsion Springs Mayer, B. A., Kansas City. Kansas Neber, E. N., Centralia, Ill. Neibling, H. A., Kansas City Nelson, L. S., Kansas City, Kansas
Norris, S. R., Leavenworth,
Kansas
Orr, Thomas G., Kansas City
Parker, H. G., Kansas City
Petterson, P. S., Kansas City. Kansas Pickett, Wm. H., Kansas City, Kansas Pratt, W. L., Leavenworth, Kansas Schwartz, John W., Sioux City, Iowa Shaffee, L. D., Kansas City, Kansas Shephard, Glen R., Jr., Kansas City, Kansas Shoemaker, F., Kansas City Steffen, L. F., ElDorado, Steffen, Kansas ElDorado. Tripodi, D. W., Excelsion Springs
Tyner, Harlan H., Warrensburg
Westfall, George A., Kansas

City, Kansas Wolcott, R. R., Jefferson City Woodward, Lee Roy, Mason City, Iowa Visitors—22
Bartleson, W. H., Kansas City
Conrad, Mrs. Laura J., Appleton City
Conrad, Mrs. Ted., Montrose
Cooper, Mrs. Claude W., Cooper, Thayer
Foster, Mrs. Margaret R., Topeka
Gorrilla, Mrs. L. Vincent, St. Halferty, Miss A., Kansas City Hansen, Mrs. A. L., Appleton Helsby, F. K., Kansas City Jones, E. W., Chicago, Ill. Kendis, Mrs. Joseph B., St.

Kendis, M. B., Kansas City Kendis, Mrs. M. B., Kansas Loranz, C. P., Birmingham, Ala.
Nifong, Mrs. Frank G., Columbia
Pickett, Mrs. C. P., Princeton
Pratt. Donald E., St. Louis
Schermesser, Tillie, Independ-

Louis

Schwartzman, Mrs. Bernard,

Schwartzman, Mrs. Bernard.
St. Louis
Taylor, Marie, St. Louis
Tillman, L. M., Kansas City
Welebir, Mrs. Ferdinand.
Bonne Terre

Exhibitors—103
Allee, H. R., Kansas City
Allen, Paul T., St. Louis
Barrett, L. J., New York,
N. Y.
Benton, Mrs. E., Kansas City
Bergen, A. T., St. Louis
Blum, Fred A., Kansas City
Bock, Thelia, Chicago, Ill.
Bousack, H. L., St. Louis
Breckenkamp, A. W., St.
Louis Louis Brown, A. Elmore, Kirkwood Cameron, A. S., Chicago, Ill. Carthers, P. S., Kansas City Cleary, Leo A., St. Joseph Cohen, C. F., Kansas City Collins, W. E., Des Moines.

Iowa Cramblet, L. H., Bloomfield,

N. J.
Danford, W. E., Kansas City
Doyle, Gerald, Kansas City
Dumas, E. L., St. Louis
Farrell, A. D., Chicago, Ill. Farrell, Rose, New Haven, Conn.

Fisher, Lewis A., Kansas City

Fisher, N. C., Philadelphia, Pa.
Fossieck, Byron E., St. Louis
Fox, B. R., Kansas City
Fox, D. A., Philadelphia, Pa.
Frederick, L. H., Kansas City
Fritts, Ralph M., Kansas City
Genz, Beulah, San Francisco,
Calif.

Calif.
Genz, Fred, San Francisco.
Calif.
Gillies, H. C., Kansas City
Goodwin, C. H., St. Joseph
Grant, J. L., Chicago, Ill.
Gray, M. A., New York, N. Y.
Greb, E. M., Kansas City
Hannaher, Gladys, Chicago,

III.
Hardy, C. F., Kansas City
Hart, L. W., Kansas City
Havey, W. J., Kansas City
Hewitt, C. M., Kansas City
Hicks, C. O., Kansas City
Holder, R. W., Kansas City
Holzapfel, Paul, Kansas City
Humphreys, E. S., Milwaukee,
Wis

Hutcherson, Frank E., Kansas City Ilg, C. J., New York, N. Y. Iungerich, F. L., St. Louis Jamieson, A., North Chicago,

Janes, B. W., Kansas City Johns, R. M., Springfield Johnson, Laurel M., Orange,

Johnson, Laurel M., Orange, N. J.
Kerns, V. L., Kansas City
Kiefer, M. J., Chicago, Ill.
Kindt, E. Leota, New Haven,
Conn.
Kozak, F. J., Kansas City
Leakey, John E., Kansas City
Logan, George E., Kansas
City
Luther H. W. Kansas City

City
Luther, H. W., Kansas City
McBride, H., New York, N. Y.
McKnight, Ruth, St. Louis
Martz. D. I., St. Louis
Meeves, Elsianne, Kansas

City Megenity, N. E., Kansas City Melhinch, Seth L., Kansas

Miller, Willard D., Kansas Moskoff, B. L., Philadelphia,

Palmer, Ben, Kansas City Parsley, J. A., Kansas City Pfau, Robert, New York, N. Y. Phillips, T. A., Philadelphia,

Proescholdt, Robert, Kansas City

City Prosser, L. S., Kansas City Pugh, W. G., Kansas City Reynolds, F. B., Joplin Riley, Virginia, Kansas City Robel, T. B., Kansas City Robinson, George A., Kansas City

City
Rustenback, G. J., St. Louis
Sandusky, R. R., Kansas City
Sherden, L. R., Kansas City
Smith, C. R., Kansas City
Smith, T. W., Kansas City
Stafford, R. A., St. Joseph
Stallmann, W. C., Philadelphia Pa

phia, Pa.
Striegel, V. W., Kansas City
Suding, C. H., Bloomfield.
N. J. Suppinger, W., New York,

N. Y. Testerman, H. H., Kansas City Thayer, E. Q., Kansas City Tilton, F. S., Kansas City Timmons. W. H., Kansas City Waddell, Tom, Overland Park.

Wagner, A. P., Philadelphia, Wagner, R. A., Philadelphia,

Pa.
Wa'erbury, G. E., Kansas City
Walrond, Jess, Kansas City
Walsh, J. G., St. Louis County
Wasem, Otto A., St. Louis
Williams, H. W., Kansas City
Wilson, G. J., St. Louis
Woods, R. J., Kansas City
Wulfmeyer, Don H., St. Louis
Yates, M. G., St. Louis
Total Registration—605

WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

President, Mrs. Eben J. Carey, Wauwatosa, Wisconsin. President-elect, Mrs. David W. Thomas, Lock Haven,

WOMAN'S AUXILIARY TO THE MISSOURI MEDICAL ASSOCIATION

President, Mrs. J. B. McCubbin, Fulton. President-elect, Mrs. Harry M. Gilkey, Kansas City.

The Twentieth Annual Convention of the Woman's Auxiliary to the Missouri Medical Association was held in Kansas City on April 23 and 24 at the Hotel President.

Although several last minute changes had to be made, a well planned program was carried out with unity and gratification. Dr. W. W. Bauer, Chicago, Director of the Bureau of Health Education of the American Medical Association, gave an encouraging and inspiring talk on "Courage Is Not Rationed." Thomas W. Parry, Jr., St. Louis, Public Relations Consultant, spoke on "The Doctor's Wife in a Public Relation Program." Fine reports were given by the Chairman of the committees.

On Monday evening the Annual Dinner in Honor of the Past Presidents of the Missouri State Medical Association was held in the Ballroom of the Hotel Muehlebach. Dr. A. W. McAlester, President of the Missouri State Medical Association, paid tribute to his father, Dr. A. W. McAlester, I, who had for many years given generously to the cause and success of his noble and beloved profession. The unveiling of the portrait of Dr. McAlester, I. was inspirational and impressive.

Father Schwitalla, S.J., Dean, St. Louis University School of Medicine, gave an eloquent address on "The Position of Medical Education in Federalized Medicine." John M. Pratt, Administrator, National Physicians Committee, Chicago, spoke on "What the American People Think About Doctors, Medical Care and the Prepayment Plan."

This convention closed for Mrs. Robert C. Havnes. Marshall, a most successful year as President; her accomplishments were many and lasting. The installation ceremony placed in office Mrs. J. B. Mc-Cubbin, Fulton. The confidence and cooperation of the entire membership bespeaks for our new president and her staff a continuance of the untiring interest, friendly and cordial spirit that has existed in the organization throughout the past years.

During the entire convention that famous Kansas City hospitality prevailed and despite spring showers and flooded areas it was a meeting long to be remembered.

> Mrs. A. J. Crider, Press & Publicity Chairman.

BOOK REVIEWS

Text-Book of Pathology. Edited by E. T. Bell, M.D., Professor of Pathology in the University of Minnesota, Minneapolis, Minn. Fifth Edition, Enlarged and Thoroughly Revised. Illustrated With 448 Engravings and 4 Colored Plates. Philadelphia: Lea and Febiger. 1944. Price \$9.50.

This book, now in its fifth edition, is too well known to practicing pathologists to need extensive review. It is a well written, compact text that covers the subject of pathology in 840 pages. As a text for medical students it presents all that is required for the course in pathology in simple form and without special emphasis on any one division of the subject.

There are thirty chapters in the book and the arrangement is such that it lends itself easily as a good reference text to the practitioner of medicine who wishes to refresh himself on what is up to date in the present knowledge of disease.

The illustrations are good and plentiful. One can recommend it as a useful book for any doctor to own. R. L. T.

Textbook of Physiology. By William D. Zoethout, Ph.D. Professor of Physiology in the Chicago College of Dental Surgery (Loyola University); and W. W. Tuttle, Ph.D., Professor of Physiology, College of Medicine, State University of Iowa. Eighth Edition. With 308 Text Illustrations and 3 Color Plates. St. Louis: C. V. Mosby Company. 1943. Price \$4.75.

This revised edition is an excellent text or reference book for student nurses and student technicians in that the authors have so condensed and simplified all the fundamentals of physiology.

The diagrams of the metabolisms of the various foodstuffs are very clear and complete, as is the one on the interconversion of organic foodstuffs. All in all, the pictorial explanations aid immeasurably in the students' understanding of the reading matter. The color plates are very good, especially the one of the various blood cells seen in a differential.

In the chapter on "Translocation of Materials," the author does not attempt to use Donnan's equilibrium as an explanation of the unequal distribution of diffusable ions on either side of a semipermeable membrane; and it would probably be better to give a brief explanation using this theory than just to leave the impression that there has been no feasible solution to the problem at this time.

The chemistry, in which I was especially interested, is very satisfactorily explained and is certainly more completely outlined here than in the earlier editions. M. C. S.

THE BIOCHEMISTRY OF MALIGNANT TUMORS. By Kurt Stern, M.D. Formerly Research Associate of University of Vienna, New York, N. Y., and Robert Willheim, M.D., Professor, University of Philippines, Manila. Brooklyn: Reference Press. 1943. Price \$12.00.

In reading this book, one is struck with the fact that an excellent subtitle might have been An Annotated Bibliography, for that is essentially what it appears to be. "... The tendency has been to cover in this treatise the relationship of cancer to chemistry in the broadest meaning of both words, based on a collection of the literature as complete as possible." The volume is thus an accumulation of all the key articles which have been written within the past twenty-five years dealing with the biochemistry of malignant tumors in all of its aspects. It represents a tremendous amount of time and thought spent in abstracting these articles, and probably no small effort in constructing transitional phrases and clauses to link together so many diverse

Unfortunately the preponderance of references are in German journals and hence written in German, a language which is an obstacle of varying proportions to many readers who would like otherwise to pursue some

of the points to their source.

The material is aggregated under ten chapter headings; viz., Inorganic Chemistry, Organic Chemistry, Physical Chemistry, Enzymes, Nutrition and Vitamins, Metabolism, Endocrine Glands and their Hormones, Immunology, Biochemical Aspects of Tumor Origin and Tumor Growth, and Chemical and Biological Tumor Diagnostics. In the main body of the chapters the material is presented as an abstract of the original article with little or no attempt at the evaluation on the part of the authors. At the end of each chapter, however, with the exclusion of chapters five, six, eight, and nine there is a summary in which the authors attempt to weigh the accuracy, validity and importance of the main points considered in that section.

This treatise is not intended to be a text book, nor did the authors attempt to base the book as a whole on a 'cancer theory' of their own." It is a source book of references which is a sine qua non for the biochemist, pathologist and research worker, but a non-remunerative task for the practicing physician. D. E. K.

ORTHOPEDIC NURSING. By Robert V. Funsten, M.D., Professor of Orthopedic Surgery, University of Virginia Medical School, and University of Virginia Hospital School of Nursing, Charlottesville, Va., and Carmelita Calderwood, R.N., A.B. Consultant in Orthopedic Nursing, National League of Nursing Education, New York. Formerly Supervisor, Orthopedic Service, Iowa University Hospital, Iowa City, Iowa; Formerly Clinical Instructor in Orthopedic Nursing, Children's Hospital, Denver, Colo. With 181 Text Illustrations. St. Louis: C. V. Mosby Company. 1943. Price \$3.75.

The authors state in the preface that this book is an attempt to bring together in one volume the background of medical information and nursing technics necessary to assist the nurse in caring for the orthopedic patient. After reading the book it may be said that this has really been accomplished. There is a sufficiency of the medical side to make the problems of orthopedic surgery understandable, then the principles of nursing care are simply and plainly elucidated.

Chapter I deals with the general nursing problems and their relation to the orthopedic patient, then proceding to Chapters II, III and IV, the more particular nursing care of particular things is discussed. Chapter V is devoted to physiotherapy. This comprises Units 1 and 2 of the book.

Unit 3 is composed of Chapters VI, VII and VIII, devoted to congenital deformities, while Chapters IX, X, XI, XII, and XIII, or Unit 4 are given over to bone disorders in children.

Acute and chronic inflammation of joints are found in Unit 5. Unit 6 is devoted to fractures, dislocations, sprains and other joint injuries.

Static deformities and disabilities, namely: Posture and body mechanics, scoliosis, disabilities of the feet in children and adults are found in Unit 7.

Next in Unit 8 are discussed the problems met in the care of conditions resulting from injury or disease of the brain, spinal cord and nerves.

Unit 9 treats of bone tumors; Unit 10 of conditions of the low back while bone disorders in adolescent and adult life are found in Unit 11.

The final unit, consisting of one chapter, is devoted to the problems of the orthopedic nurse and the war. It has been a real pleasure to review "Orthopedic Nursing"! The book should prove a real help to nursing schools and do much to make the orthopedic patient

more interesting to the nurse.

Summer Heat . . . Phagocytosis . . . Protein Need . . .

The efficacy of phagocytosis is definitely linked to adequate protein intake. As environmental temperature rises, the diet-percentage of protein apparently must rise proportionately, to maintain phagocytosis at optimum.* Meat is a rich source of proteins, and its proteins are of highest biologic quality, the RIGHT KIND for every bodily need, including phagocyte activity.



The Seal of Acceptance denotes that the nutritional statements made in this advertisement are acceptable to the Council on Foods and Nutrition of the American Medical Association.

*Commenting editorially on the work of Mills and Cottingham (J. Immunol. 47:503 [Dec.] 1943), THE JOURNAL states: "They found that after five and one-half weeks maintenance at 68 F. rats showed a maximum phagocytic activity on diets containing 18 per cent of protein. There was a definite decrease in phagocytic activity with an increase or decrease from this level. In rats maintained at 90+F. the phagocytic optimum diet was 36 per cent of protein. Thus adequate protein intake would seem to be fully as important as adequate vitamin intake to maintain optimal phagocytic activity (resistance to microbic infections). The immunologic optimum protein intake is higher in the tropics than in temperate climates. . . . This demonstration of important variations in phagocytic functions is a pioneer contribution to basic immunologic theory and may have wide clinical implications." (J.A.M.A. 124:1203 [April 22] 1944.)

AMERICAN MEAT INSTITUTE

MAIN OFFICE, CHICAGO...MEMBERS THROUGHOUT THE UNITED STATES

INDEX TO ADVERTISERS

Abbott Laboratories
Bernheim Distilling Company39Borden Company11Brewing Industry Foundation17Burroughs Wellcome & Company12, 33
Camel Cigarettes15Camp, S. H. & Company27Canada Dry Ginger Ale, Inc.14Ciba Pharmaceutical Products, Inc.29Ciba Pharmaceutical Products, Inc.InsertCoca-Cola Company18Cook County Graduate School of Medicine32
Denver Chemical Manufacturing Company 40
Faith Hospital
General Electric X-Ray Corporation9Glenwood Sanatorium28Gradwohl School of Laboratory Technique20Grandview Sanitarium22
Hamilton-Schmidt Surgical Company28Hanger, J. E., Inc.26Holland-Rantos Company8Hynson, Westcott & Dunning, Inc.14
Isle, W. E., Company
Lederle Laboratories, Inc.4Lilly, Eli and Company16Lov-E Brassiere Company38Luzier's, Inc.30
M & R Dietetic Laboratories, Inc.37Major Clinic Association5Mead Johnson & Company44Medical Protective Company20Milwaukee Sanitarium36Miscellaneous Announcements36Mosby, C. V., Company35Mullen Ambulance Company22
National Pathological Laboratory32Neurological Hospital, The28Norbury Sanatorium32
Parke, Davis & Company10Philip Morris & Company19Physicians Casualty Association26Producers Creamery Company31
Ralph Sanitarium
Schenley Laboratories, Inc. 25 Schmid, Julius, Inc. 6 Searle, G. D. Company 13 S. M. A. Corporation 2 Smith-Dorsey Company 18 Spencer, Inc. 31 Stokes Sanitarium 36
Upjohn Company
Wallace Sanitarium26Winthrop Chemical Company7World Insurance Company34Worrell, Dorothy36Wyeth, Inc43
Young, F. E., & Company
Zemmer Company 22

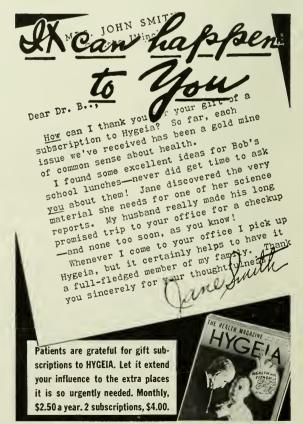
BOOKS RECEIVED

INDUSTRIAL OPHTHALMOLOGY. By Hedwig S. Kuhn, M.D., Hammond, Indiana. With 114 Text Illustrations Including 2 Color Plates. St. Louis: C. V. Mosby Company. 1944. Price \$6.50.

Synopsis of Neuropsychiatry. By Lowell S. Selling, Sc.M., M.D., Ph.D., Dr.P.H., Director, Psychopathic Clinic, Recorder's Court, Detroit, Michigan; Associate Attending Neuropsychiatrist, Eloise Hospital; Adjunct Attending Neuropsychiatrist, Harper Hospital. St. Louis: C. V. Mosby Company. 1944. Price \$5.00.

ELIMINATION DIETS AND THE PATIENT'S ALLERGIES. A Handbook of Allergy. By Albert H. Rowe, M.D., Lecturer in Medicine, University of California Medical School, San Francisco, Calif.; Consultant in Allergic Diseases, Alameda County Hospital, Oakland, California. Second Edition, Thoroughly Revised. Philadelphia: Lea & Febiger. 1944. Price \$3.50.

Synopsis of Diseases of the Heart and Arteries. By George R. Hermann, M.S., M.D., Ph.D., F.A.C.P., Professor of Medicine, University of Texas; Director of the Cardiovascular Service, John Sealy Hospital; Consultant in Vascular Diseases, U. S. Marine Hospital. Third Edition. With 103 Text Illustrations and 4 Color Plates. St. Louis: C. V. Mosby Company. 1944. Price \$5.00.



AMERICAN MEDICAL ASSOCIATION, 535 N. Dearborn St., Chicago

THE JOURNAL

OF THE

Missouri State Medical Association

The Official Organ of the State Association and Affiliated County Societies
Issued Monthly under direction of the Publication Committee

COPYRIGHTED, 1944, BY MISSOURI STATE MEDICAL ASSOCIATION. ALL RIGHTS RESERVED.

VOLUME 41

AUGUST, 1944

Number 8

RALPH L. THOMPSON, M.D., Editor HELEN PENN, Assistant Editor 623 Missouri Bldg., St. Louis, Mo. Telephone, Newstead 0404-05 PUBLICATION | RALPH L. THOMPSON, M.D., Chairman | W. A. BLOOM, M.D. | ROBERT MUELLER, M.D. | J. WILLIAM THOMPSON, M.D.

HEMATURIA, ITS DIAGNOSIS AND TREATMENT

D. K. ROSE, M.D.

ST. LOUIS

Hematuria is stressed correctly as a dangerous symptom. In a large percentage of cases the appearance of blood in the urine is strongly suggestive of infection, tumor or stone. There are other considerations, however, as one sees hematuria when there is no disease demonstrable in the urinary tract; this is spoken of as essential or idiopathic hematuria. It also is seen following unusual exercise. Red blood cells can be found in the urine in practically every instance in players after football and other strenuous forms of athletics. Nephritis, particularly glomerulonephritis, presents a problem in differential diagnosis. In occasional instances, blood dyscrasias are also important in differential diagnoses when hematuria occurs, and the diagnosis can be particularly difficult if there are associated blood clots in the renal pelvis which, on pyelograms, either retrograde or intravenous, appear as filling defects and, of course, immediately suggest tumor.

The most common occurrence of gross hematuria is in females with cystitis. The next most common occurrence is with stones, and third with tumor. The association of hematuria with or without pain, such pain being either in the high or lower urinary tract, is an important factor to consider in all instances. Whenever profuse bleeding occurs, associated with frequent and painful urination, particularly terminal pain, that is on finishing urination, one considers cystitis. The diagnosis of cystitis is not sufficient; one must, in all instances determine why the cystitis occurs. Frequently in this type of hematuria in the female, cystitis is associated with childbirth damage to the perineal floor which disturbs the situation sufficiently so that a residual urine is present in the bladder. This residual urine acts as a trap to organisms which are excreted by the kidneys and so an acute pyelitis or cystitis with

Read before the St. Louis Medical Society, March 21, 1944. From Washington University School of Medicine and Barnes Hospital. terminal pain and bleeding occurs. This may last only a short time, being replaced later with milder symptoms when the bladder has developed immunity to the infection. I believe the most important statement that can be made regarding hematuria is to stress the danger of treating the patient with drugs beyond the period when a symptomatic or microscopic cure is probable or possible. The newer sulfa and mandelic acid drugs often relieve symptoms but do not cure the inciting cause as infection with tumor or stone. As in every other case of altered urologic physiology, symptoms must not be treated but the pathologic condition must be determined accurately and completely.

A chronic urinary infection causes bleeding microscopically more frequently than grossly. Surface epithelial cells are designed by nature to pass organisms on through the urinary tract, but if they are injured in any way hematuria with a more acute infection may occur; such injury may be chemical, may be thermal, may be bacterial, that is an overwhelming infection, or it may be by direct trauma from catheter or cystoscope.

When infection has persisted for a long time, the mucous membrane may thicken, its surface become irregular, heaped up and, in such a state, be poorly resistant to infection. Later, of course, scar tissue may occur; scar tissue may cause passive congestion and passive congestion is easily a source of bleeding.

DIAGNOSIS OF HEMATURIA

Locating the source of hemorrhage is a requirement which must, in every instance, be brought about by a preconceived method of diagnosis. Such a method must be short and each step must have logic in its placement. The diagnosis by such a method must be carried on to the point of establishing the area of pathology. In each step there will, of course, be many exceptions and, in my opinion, the reason that manuals are lengthy and fail of general understanding is that too many of these exceptions, which after all cover the entire subject, are incorporated in the methods of diagnosing hematuria. The urologist divides the urinary tract into an upper and lower. The upper urinary

tract includes the kidney, pelvis and ureter. The lower urinary tract includes the bladder, internal orifice of the bladder, urethra with its meatus and, in the male, the prostate and seminal vesicles. I should like to give the steps briefly and in order.

- 1. Physical examination, including necessary laboratory tests, will give a pretty good idea as to whether general appearance of the patient suggests a blood dyscrasia, possibly tuberculosis, tumor or serious nervous disease, or whether they are in the prostate age. All these are important in that it may suggest the probable location of the bleeding, but certainly so far one would be unable to point to the exact source.
- Patient's history should be taken entirely on a basis of altered function of any part of the urinary tract, that is, an analysis of symptoms considered from a physiologic standpoint. History taking has an importance only of suggesting the diagnosis. Bladder irritability, associated with bleeding, does not necessarily mean that clots, if they are present, arise from the bladder wall. One would expect but may not have, some ureteral pain when they come from the upper urinary tract. Bladder symptoms, such as frequency, urgency, terminal pain, incontinence of urine, all suggest that the cause of the bleeding is probably, but not necessarily, to be found in the lower urinary tract. On the other hand, if the symptoms are referable entirely to the upper urinary tract it becomes very obvious in most cases. And thus one may have the first major primary division in the differential diagnosis.
- 3. Urine examination should be of glass 1 and glass 2, voided specimens in the male. In the adult female, use only a catheterized specimen for examination. In female children alone a voided specimen should be used. An adult female voided specimen for determination of infection is entirely worthless; vaginal cells and skin organisms can always be found in such a specimen. Glass 1 and 2 corroborate symptoms because, in the taking of the history one would ask whether the blood appears when the urine starts, whether it occurs continuously with the flow of the stream, or whether it only appears at the end of urination; and with this appearance of the blood one should synchronize the symptoms.

In the division of glass 1 and 2, voided specimen of urine in the male, the patient should be requested to pass an inch or inch and a half of urine in the first glass and the balance in the second. If one divides the lower urinary tract as one would a barrel and its spigot, consider the glass one being the contents of the barrel plus that of the spigot, glass 2 containing the contents of the barrel, plus anything not completely washed out of the spigot by the filling of glass 1. This gives a simple method of analyzing glass 1 and glass 2. Glass 1 and 2, therefore, in the male become very important in differentiating the possible source. It is seen readily that when blood in glass 1 and 2 is quite equal the urine and blood is mixed in the bladder and either

comes from the bladder or the upper urinary tract. When blood appears at the meatus it must be from the urethra. It can, however, appear at the meatus and at the same time bleed back into the bladder, from a prostate. However, if bleeding does appear at the meatus and there is no serious infection associated, one would not look to the upper urinary tract for the hematuria. On the other hand, if there is less blood in glass 1 than there is in glass 2 and the visible bleeding shows at the end of urination, at the time when the opposing walls of the posterior prostatic urethra or the bladder come together to squeeze out blood, the pathologic condition, if with pain, is cystitis or urethritis, but without pain is suspicious of tumor. One must insist upon knowing what causes the cystitis. Cystitis is a symptom complex of irritable bladder or urethra; its symptoms can be due to a pericystitis, endometriosis, Hunner ulcer or inelastic scar in the bladder wall, or even reflex from the urethra, i.e., with no bladder mucosal infection present. When glass 2 contains blood in excess of one, there may be a carcinoma, stone, tuberculous ulcer or simple infection. If it is a simple infection one still has to determine why the simple infection occurred, whether it is located in the lower urinary tract or whether the upper urinary tract is involved.

Infection of the urine is more accurately determined by a methylene blue stain than by any other method. A gram stain, providing only a few gram-negative bacilli are present, may be disappointing to the physician. Culture of the urine, while accurate in differentiating types of infection, is not always accurate in determining the presence of infection. Some organisms do not grow well in urine, sometimes they cannot stay outside of the body long and culture well, sometimes there are things in the urine itself that limit their viabality. These things may be inherent in the urine itself or they may be the tag end of the effects of urinary antiseptics that have been taken some time previously. It is not unusual to have right and left kidney specimens reported on culture as positive for bacteria, with the bladder urine, taken at the same time, reported negative for bacteria. I cannot feel that this is a technical error, but I feel it is associated with one of the points mentioned.

- 4. If rectal examination is done before the urine examination, microscopic blood, as a result, may be found in the urine. One should note the presence or absence of an abnormal rectal sphincter, which would indicate a neurogenic urinary disturbance and, therefore, infection possibly causing hematuria; and one also should check for carcinoma of the prostate and for types of benign hypertrophy of the prostate, or any other pathologic condition, scar or prostatic calculi with infection which could be etiologic to hematuria. Prostatic secretion is obtained for examination at this time.
- 5. Residual urine determination. If a person is on large fluid intake each kidney may put down into the bladder as much as one ounce of urine per minute. Therefore, a residual urine determina-

tion should never be made except at a time when the patient has not been drinking undue amounts of water, and the catheter should be passed within two or three minutes after the patient has voided. In the female it is necessary to catheterize before having the patient void to determine the residual urine for, if there is no residual urine, there would be no specimen by catheter for examination. Consequently, in the female catheterize for specimen; have the patient void and then catheterize for residual urine. The most common cause here is cystocele, urethrocele or rectocele. It is of distinct importance to determine the presence or absence of residual urine in these cases. Steps 3, 4 and 5 should be completed and then the specimens taken to the laboratory for examination.

6. Cystoscopy, urethroscopy, catheterization of ureters, differential kidney function test, with phenolsulphonphthalein, differential urine stains and culture should be done. Roentgen ray examination always requires a plain roentgen ray (K.U.B.) kidney, ureter, bladder film. Following this, pyelograms should be done with the patient supine; immediately after this, ureteral catheters are removed and pyelograms are taken with the patient erect to show as normally as possible the position of the kidney and ureter when the patient is standing and with the splinting effect of the ureteral catheters removed.

In later years there have been valuable additions to instruments. A very small No. 16 French cystoscope serves very nicely as a urethroscope as well as a cystoscope, because one can get the lens far enough away from the surface in the urethra to see it quite well. The large cystoscope fits the urethra so tightly that one cannot get the lens far enough away to obtain a satisfactory focal distance.

Some instruments have urethroscopic obturators. However it is done, cystoscope or urethroscope, it is well to look over the prostatic urethra for lobes that rub against each other, to note dilated vessels in the internal orifice and to note whether the cystoscope in itself causes bleeding to a considerable degree. The other factors now come into play. If the blood is suggestively from the prostate, and the glass 1 and 2 test particularly point to the bladder, one can make a pretty good guess. In such an instance, when there is a residual infected bladder urine I should rather do an intravenous pyelogram than a retrograde pyelogram. However, if the situation still remains in doubt, ureteral catheters are passed, to the right and left kidney pelves. The urine thus collected always shows some red blood cells, even a gross hematuria; therefore the presence or absence of microscopic red blood cells to a gross hematuria in ureteral catheter specimens does not even suggest in all instances that the bleeding is from that kidney. The phenolsulphonphthalein test, when acute hemorrhage does not interfere, is of distinct value in the differential kidney test. Excreting dyes, and of course phenolphthalein is the diagnostic dye, is the first kidney function to disappear upon urinary back pressure; even a temporary ureteral block will decrease excretion of this dye. Therefore, one has to be very careful that a ureteral catheter itself does not block its kidney. On the other hand, if the kidney is blocked by blood clot, tumor, stone or malformation the phenolsulphonphthalein test will be slower in appearance and with less excretion on that side than the other. It is necessary to watch the drip, be sure that both sides are excreting equally; this test, associated with the pyelographic findings, will always determine whether or not the kidney with the lesser amount of phenolsulphonphthalein excretion is due to a large kidney pelvis on that side, a catheter blocked kidney or to kidney condition which causes bleeding. The picture itself should bring out the differential diagnosis if it is in the upper urinary tract. With completion of the entire examination, or stopping at the point when the cause of hemorrhage is found, one will have reached the diagnosis and the necessary treatment is usually indicated clearly.

The overall consideration of such a short method is that a person will never be treated symptomatically. The location of the bleeding point or area will always be determined.

TREATMENT

Treatment should involve a consideration of all urology, therefore only a few selected points can be made.

In hematuria associated with stone, any stone too large to pass should be removed surgically. It is more important to determine the presence or absence of any factor causing stagnation of urine in the upper urinary tract, such as aberrant blood vessel or any other constriction of the ureter or scar tissue, than it is to remove the stone. To remove the stone and leave an obstructing factor of that kidney behind which might be a factor in stone recurrence invites destruction of the kidney as the chances are that any infection, under such conditions, will not clear up because the residual urine, i.e., the stagnation of urine in that kidney will persist until the obstruction is relieved. For this reason I consider it advisable to splint practically all ureters when the stone is removed. Splinting needs to be done through a nephrostomy wound or through a pyelostomy wound. The splinting catheter is usually a No. 10 soft red rubber. It is left in for as long as two weeks. While this increases hospitalization some, it facilitates the eventual closure of the urinary sinus.

Ureteral stones which have passed out of the pelvis and are in the ureter itself, in my opinion, are treated all too frequently with a cystoscope. I believe that a ureter alone can pass stones better than one can get them out. The ureter by dilating to a pointed funnel at the stone; as the ureter dilates the funnel point and stone go down. There are many, many exceptions to this but, by and large, when such a dilated ureter with a funnel of urine does occur above, at the stone, I believe it is a mistake to empty it by ureteral catheter.

Better let the patient be up, give him morphine which increases the force rate and amplitude of ureteral peristalsis, have him drink lots of water, carry his morphine in his pocket in readiness for a colic and go about his duties. If the stone is within passing size, I believe in the long run he would be better off with this treatment than with hospitalization and repeated cystoscopic maneuvers to get out the ureteral calculus.

Treatment of tumor of the kidney or ureter is, of course, surgical. The type of tumor determines the type of surgery.

In bladder tumor I often use closed roentgen ray to help in cystoscopic destruction of the growth. The prostate resectoscope and cystoscopic diathermy are used hoping to destroy bladder tumors when they are not too large and whenever there is some obstruction to the bladder which cannot be corrected. It is often desirable not to do a cystostomy in case of an obstructed bladder as in those instances closure may be very slow.

I use open roentgen ray in the cases of bladder cancer which are most desperate. The very important point in this is to open the bladder, fix the cancer bearing bladder wall so that it is stretched thin and flat, then put the roentgen ray tube down to this stretched, thinned surface. When the location of the cancer allows this, and one makes use of these important points, he should have the same chance of curing carcinoma of the bladder as curing a carcinoma of the skin by roentgen ray. There are other considerations. All redundant malignant tissue must be taken off and the base of the cancer treated. The urine must be kept out of the bladder during the roentgen ray exposure. This method is used only in the desperate and otherwise inoperable cases. Benign papilloma and papillary carcinoma when not too large are best treated transurethrally. Malignant ulcers of the bladder are best treated by surgery, providing they are not on the base; that is, providing they are not too deeply fixed and are completely accessible. Then I believe they should always be ringed or rimmed with radon seeds and roentgen ray used in a closed manner.

Congenital malformations that occur and cause hematuria are often infected and are individual problems. Hematuria associated with infection, simple or tuberculous, varies greatly. The ulcerative type of tuberculosis is always surgical. No doubt the miliary type of kidney tuberculosis does recover as healed cases are found at autopsy. Tuberculosis of the bladder heals in a large per cent of cases after the tuberculous kidney is removed. If it does not it suggests that there is some infection in the opposite side. Very early renal tuberculosis may be but is very rarely the cause of a gross hematuria.

Simple infection should never be treated by the new and more effective drugs, sulfa drugs and mandelic acid, until the cause of the infection has been determined. Until that cause has been corrected one is only endangering the patient by medical treatment. Essential hematurias occur very in-

frequently and each patient should be watched until it is determined that sufficient time has elapsed for the development of a tumor or any other pathologic condition that could cause the bleeding. Cystitis is not a therapeutic diagnosis. It is only partially safe to make a diagnosis of simple cystitis in children and in early marriage.

CONCLUSIONS

Hematuria is due to a broken blood vessel in the urinary system. Find that broken blood vessel by following a definite method of diagnosis, and then treat. Sulfa drugs or mandelic acid drugs may alleviate the symptoms and allow the pathologic condition to gain irreparable headway.

3720 Washington Blvd.

SAUNDERS' THEORY ON THE ETIOLOGY OF POLIOMYELITIS

JOHN ZAHORSKY, M.D.

ST. LOUIS

Thirty years have elapsed since Dr. E. W. Saunders 1, 2, 3 proposed his revolutionary hypothesis on the causation of poliomyelitis anterior acuta. This hypothesis, as he distinctly stated, was only a "working hypothesis" to be refuted or corroborated by future clinical observation and laboratory experimentation. However, it was based on a comprehensive study of the literature, an extensive clinical observation and a large number of experiments in which he was aided by Dr. T. W. White, St. Louis. I was merely a spectator profoundly interested in the scientific aspect of the problem. It seems worth while to review the conclusions made by Dr. Saunders and collect, at least in part, the recent experimental and clinical data which have a bearing on this subject.

Briefly stated, Dr. Saunders' hypothesis was this: Poliomyelitis in its sporadic appearance has an aviary origin through the medium of the green fly (Lucilia caesar) as a host. In other words, poliomyelitis is conveyed by the ova or larvae of the green fly from a fowl or other animal which has died from a specific paralytic disease. Not only are chickens but every species of fowl equally affected by limberneck. The experiments of Dr. Saunders definitely proved that the larvae of the green fly or other species of the blow fly developing on a fowl dead from limberneck produces symptoms of paralysis when ingested by other animals (young fowls, guinea pigs).

Some of these toxic larvae were studied by the U. S. Public Health service ⁴ and a peculiar strain of B. botulinus was isolated from them. Now, limberneck in chickens is believed to be caused by the clostridium luciliae, a different strain of the botulismus organism. Limberneck is, therefore, not the same as botulism. Recently, Rice⁵ declared that this organism is found in the larvae of some of the blow flies and causes limberneck in chickens.

As far as I know Dr. Saunders was the first to

establish the fact that the green fly may absorb a powerful toxin and convey a toxin producing microorganism. He believed that this bacterium or virus was identical with the virus of poliomyelitis. He had rejected botulismus from consideration because the toxin of Van Ermengem's bacillus botulinus (Clostridium botulinum) was different in animal experiments from those observed by him. Only in recent years has it been discovered that the genus Clostridium embraces a large group of anaerobic bacilli many of which produce a toxin which differs from the original toxin that produces sausage poisoning.

Dr. Saunders asserted that the virus was carried by the green flies through the ova to the carcass and there developed rapidly. In fact, he distinctly stated that at least two days must elapse from the emergence of the larvae before they become toxic. These statements have an increased value since Trask and Paul ⁶ discovered that the blow flies and green bottle flies may carry the virus of poliomyelitis either on the surface or within the body. They ask the pertinent question, "Does the virus multiply within the body of certain flies or is it merely carried on their surface or in their alimentary canals?" No answer. Several other investigators have found the virus in flies.⁷

The observations made by Dr. Saunders were corroborated by those of Dr. Wisdom * in a supplimentary paper. This investigator gathered material for the work of Dr. Saunders. He called attention to the residual paralysis in some chickens who died of limberneck. "Very little difficulty was experienced in convicting Lucilia caesar of killing and crippling so many of our chickens. We simply grew the fly from some of our toxic larvae, and in turn grew larvae from the fly, which also proved to be toxic."

Altogether these observations proved that the green fly may carry and transmit a powerful toxin, but that this toxin was the same as that of true poliomyelitis seemed doubtful.

Dr. Saunders concluded that the virus of limberneck was non-inoculable from animal to animal. He then began a series of experiments on the monkey, the only animal then known to be susceptible to true poliomyelitis in children. The protocols of these experiments have unfortunately been lost. However, there is the report of several cases. 12 I call particular attention to the report on page 309: "Guided by the well-established fact, proven and corroborated by all experimenters in the field of poliomyelitis we ventured on the next phase of our experiments," namely, inoculating monkeys. These experiments profoundly impressed those who were mere spectators. The monkey was not only susceptible to the toxin but when he survived showed symptomatic and pathologic evidence of a true virus infection. Concisely, although the toxin and virus entered the body by the gastrointestinal route, the spinal fluid and emulsions of the spinal cord of such animals were used successfully in transmitting the virus from one monkey to another by intraspinal inoculation. The pathologic specimens were examined by Dr. F. B. Bowman and revealed a distinct poliomyelitis. But was this poliomyelitis caused by the same virus that produces the human disease? Is poliomyelitis caused by several toxins or virus; in other words, is clinical poliomyelitis a distinct entity or is the epidemic being confused with the sporadic form of the disease? Dr. Saunders declared that his observations and experiments were based only on the sporadic form. ¹

I regard the experiments on monkeys as proof that Dr. Saunders was dealing with a pathogen that was more than a toxin, probably a virus. Of course, to conclude that this virus was the true poliomyelitis virus was not justified. May there be another factor—a toxin—which prepares the way for the development of the virus, a theory which has been suggested in some of the recent literature?

One objection to the experiments made by Dr. White is that the virus of poliomyelitis has not been found in the spinal fluid, yet Dr. White succeeded in inoculating one monkey by injecting the spinal fluid of a sick monkey. However, only the monkey and not the animals injected for control were affected. This shows a property specifically assigned to poliomyelitis.

One decisive experiment was not made, namely, allowing the uninfected green fly to lay the ova on the spinal cord of a monkey which had been infected by a true strain of the poliomyelitis virus and determining the toxicity and infectivity of the developing larvae. Dr. Saunders intended to make this experiment but was compelled to stop his work on account of a lack of financial support.

Dr. Saunders attempted by the accumulation of clinical evidence fortified by some animal experiments to discover the mysterious source of poliomyelitis. It was a grand effort, a direct approach, which reminds one of the experiments made by Pasteur. In spite of an enormous expenditure of money in the last thirty years, the slow progress of experimental medicine has not clarified the foggy atmosphere around the subject. Dr. Saunders' method of study still stands as a challenge to investigators in spite of the fact that his line of reasoning has many gaps. Every year the National Foundation for Infantile Paralysis issues a large volume on the collected reprints on the subject; such a vast amount of material that a practitioner cannot digest it. However, E. W. Schultz¹⁰ has summarized the recent advances in the experimental study of poliomyelitis.

The clinical experience in a large number of epidemics in the last thirty years has not refuted any of the clinical data collected by Dr. Saunders. One should remember that poliomyelitis occurs in the fly season and most cases arise in the suburban sections. Tracing the source of contagions to another human carrier is only exceptionally successful. The contagiousness of the disease has never been established. Here is a curious fact observed

for many years: Across the river from St. Louis, especially in the country districts of Illinois, poliomyelitis has been endemic for several summers, and yet there have been only isolated cases of the disease in St. Louis. What is there in the city which prevents the dissemination of this malady? Contacts with this suburban population over the bridges is a daily occurrence. This point was emphasized in a paper read before the Nebraska State Medical Association, April 28, 1938.¹¹

CONCLUSION

The chief purpose of this paper is to recall the experiments made by Dr. Saunders and call attention to his published articles which contain so many suggestive avenues of approach to experimental medicine. Also, I wish to emphasize that clinical experience should be recognized as a valuable guide in conducting the laboratory work on poliomyelitis.

536 N. Taylor.

BIBLIOGRAPHY

- 1. Saunders, E. W.: J. Missouri M. A. 9:385 (June) 1913.
 2. Saunders, E. W.; Meisenbach, R., and Wisdom, W. E.: J. Missouri M. A. 10:305 (March) 1914.
 3. Saunders, E. W.: J. Arkansas M. S. 12:6 (June) 1915.
 4. Bengston, Ida: Pub. Health Rep. 37:164; 38:340; Hyg. Lab. Bull., No. 136 (March) 1924.
 5. Rice, T. B.: Textbook of Bacteriology, ed. 2, Philadelphia, W. B. Saunders Co., 1938.
 6. Trask and Paul: J. Exper. Med. 77:345 (June 1) 1943.
 7. Sabin and Ward: Science 94:590, 1941.
 8. Wisdom, W. E.: J. Arkansas M. S. 12:11 (June) 1915.
 9. Toomy and Takaes: Am. J. Dis. Child. 61:35 (June) 1941.

- Schultz: J. Pediat. 20:110 (January) 1942.
 Zahorsky, J.: Nebraska M. J. 24:1 (January) 1939.
 Saunders, E. W.: J. Arkansas M. S. 12:308, 1915.

NECROTIC UTERINE FIBROMYOMA COMPLICATING PREGNANCY

CASE REPORT

NICHOLAS A. SCHNEIDER, M.D.

ST. LOUIS

Necrosis or acute degeneration of a uterine fibromyoma during pregnancy is rare. In reviewing the literature which was available to me I was able to find a record of only sixty-one such cases, twenty-two in foreign literature and thirtynine in American literature. There was nothing unusual in the case being reported. It is being presented merely to add another such case to those already reported.

The diagnosis of a necrotic fibromyoma which is attached to a pregnant uterus is not easy to make. In one of the cases reported 6 the patient was thought to have acute appendicitis. Laporotomy, however, showed that the condition of the appendix did not explain the patient's symptomatology. Further exploration revealed a necrotic fibromyoma attached to a pregnant uterus.

In the case reported here the symptoms and physical findings resembled those of a tumor with a twisted pedicle except that the onset of pain was

From the Department of Surgery, St. Anthony's Hospital, St. Louis

somewhat more gradual than that in the cases of twisted pedicle tumor which I have had an opportunity to take care of.

In presenting maternal and fetal mortality statistics the writers in the two American series do not differentiate between necrotic and non-necrotic myomas, but give these statistics for all myomas which were removed during pregnancy.

Mortality statistics are as follow: series one:2 thirty-two cases, maternal death rate 2 per cent, miscarriages twelve; premature labor three; series two: 1 twenty-three cases, maternal deaths none, miscarriages two. From this it is evident that myomectomy during pregnancy is not without hazard to both mother and fetus.

Those who have written on this subject seem to differ somewhat in their opinions about the method of handling a necrotic or necrobiotic myoma which is complicating pregnancy. Those who take the more conservative attitude seem to think that operative intervention should be deferred until the child is viable unless the patient's condition becomes extremely critical. This opinion assumes that the myoma will undergo partial necrosis or red degeneration and that the process of degeneration will become arrested through the reestablishment of circulation before the mass breaks down completely. The less conservative opinion seems to be that surgical intervention should be undertaken as soon as a diagnosis of necrosis has been established with reasonable certainty. Most writers seem to agree that operative intervention should be undertaken if pain persists after a fair trial has been made to relieve it by measures that are usually effective in relieving abdominal pain.

A peculiar finding in this case was that a Friedman test for pregnancy was negative on two different occasions prior to myomectomy and positive on the fifth day after the necrotic myoma had been removed.

REPORT OF CASE

Mrs. A. S., aged 32, white, primipera, was first seen on March 14, 1943. She complained of severe, generalized abdominal pain, anorexia, vomiting, weakness and loss of weight. She stated that her last menstrual period was on November 13, 1942. She had noticed rather marked enlargement of her abdomen during the last four months which she did not believe could be accounted for entirely by pregnancy. The abdominal pain of which she complained was first noticed about three weeks prior to consultation, was constant since its onset and seemed to be more severe when she was up and about and would decrease somewhat in intensity on lying down, but had never disappeared entirely since it was first noticed. It was severe enough to interfere with her sleep. Anorexia and nausea began about three weeks after amenorrhea was noticed and gradually decreased until the onset of the abdominal pain when the nausea and vomiting became more severe. She stated that she had consulted another physician who advised her to have a pregnancy test made. The test was negative. The physician treated her for several weeks but instead of feeling better she felt progressively worse.

Past Health.-Usual childhood diseases; no serious illness, no operations, no accidents.

Family History.—Father and mother living and well. One sister living and well. No brothers.

Menstrual History.—Menses began at the age of 14. It occurred every twenty-five to thirty days and was without pain. First day of last menses was November 13, 1942.

Physical Examination.—The patient was a well developed and somewhat poorly nourished white adult female, conscious and rational.

Head: scalp, skull, ears, forehead, eyes, nose, mouth and pharynx normal.

Neck: no masses; movements normal; thyroid gland not enlarged; no enlarged lymph glands.

Chest: respiratory movements symmetrical; breasts pendulous. Lungs: normal. Heart: normal except for a faint systolic murmur in the mitral area.

Abdomen: dome-shaped; appearance that of a term pregnancy. Palpation showed a large, firm mass extending upward to the left costal arch, to the iliac fossa on the right and downward almost to the pelvis. The mass was irregular, markedly tender on pressure and could not be moved. Below this mass was a softer mass which resembled a pregnant uterus of about four and one-half months gestation. The abdominal muscles showed moderate rigidity. Liver, spleen and kidneys could not be palpated. No hernia was present. Vaginal examination showed a soft cervix with soft uterus about the size of a five months pregnancy. Above the uterus was a large, firm, fixed, tender mass.

Back, extremities and reflexes were normal. Skin was normal except for facial acne. Blood pressure was 110/70.

The patient was told that in all likelihood she was pregnant and that the pregnancy was complicated by a tumor in which the blood supply was being interfered with. She was treated symptomatically and advised to return for another examination in a few days if she did not feel better.

She was seen again on March 17, 1943. Her abdominal pain had become more severe; anorexia and vomiting had remained about the same. Examination showed the abdomen about the same in appearance as it was at the former examination, but the mass had become more painful to pressure and the abdominal muscles were more rigid. She was advised to enter the hospital for further examination.

She was admitted to the hospital on March 18, 1943. She was given bed rest and sedatives. The vomiting decreased somewhat but the abdominal pain, tenderness in the mass and rigidity of the abdominal muscles remained unchanged.

Laboratory Examination.—Urine, amber, cloudy, neutral, specific gravity 1.016; no albumin, no sugar, no bile, no casts, no erythrocytes; occasional leukocyte.

Blood: Hg. 11/77; red blood cells 3,590,000; white blood cells 8,200; stab 6; segmented 65; leukocytes 26; monocytes 3.

Friedman test on March 23, 1943, was negative.

Roentgen ray: flat plate of abdomen on March 19, 1943, showed a large pelvic tumor and no fetal parts.

The highest temperature during the first week in the hospital was 99 F., the lowest 97 F. Pulse rate varied between 60 and 90. Respirations were 18 to 20.

In view of the fact that the abdominal pain, abdominal tenderness, muscular rigidity and anorexia did not improve with symptomatic treatment and, also, in view of the fact that two Friedman tests were negative, a diagnosis of abdominal tumor with impaired blood supply and probably without pregnancy was made and operation was advised.

On March 25, 1943, under gas oxygen anesthesia, the abdomen was opened through a right paramedian incision extending from a point about 2 inches above the umbilicus to the symphysis pubis. When the peritoneum was incised about 200 cc. of serosanguinous

fluid escaped. Exploration showed the uterus to be about the size of five months pregnancy, soft and apparently pregnant. To the left upper part of the uterus was attached a mass about 8 inches long, about 5 inches in diameter, ovoid in shape but flattened to the right. It was attached to the uterus by a short flat pedicle which was about 11/2 inches long, one inch wide and 1/4 inch thick. The mass was somewhat irregular and greyish white in appearance with purple areas scattered through it. It was adherent to the posterior peritoneum, omentum, terminal ileum and transverse colon. On freeing the mass from these structures it was broken into, the point of rupture showing necrotic tissue. The pedicle was clamped at the uterus, cut and sutured and the mass removed. The abdomen was closed without drain. Before the abdomen was closed a sterile stethoscope was placed directly against the uterus to listen for fetal heart sounds. None could be heard. In addition to the large necrotic myoma there were two small subserous myomas attached to the right side of the uterus, one anteriorly and one posteriorly. They were about 2 inches in diameter and were not removed.

Pathologic Report.—The specimen was a firm, slightly dull subserous uterine mass. Sections showed some necrosis with some recognizable fibrous and muscle tissue.

Diagnosis.-Subserous fibromyoma with necrosis.

The patient made an uneventful postoperative recovery and was discharged from the hospital on April 7, 1943. In view of the fact that the uterus seemed to be pregnant at the time of operation a Friedman test was made on March 31, 1943, i. e., on the fifth postoperative day. It was positive.

The patient was delivered of a normal baby girl weighing 7 pounds, 6 ounces on Aug. 17, 1943, by low

forceps. She has been well since that time.

3318 S. Grand Ave.

BIBLIOGRAPHY

1. Reis, R. A., and Sinykin, M. B.: Am. J. Obst. & Gynec. 37:834 (May) 1939.
2. Mussey, R. D., and Hardwick, R. S.: Am. J. Obst. & Gynec. 29:192 (February) 1935.
3. Lynch, F. W.: Am. J. Obst. 68:427-450, 1913.
4. Polak, J. O.: Surg., Gynec. & Obst. 46:21, 1928.
5. Kosmak, Geo. W.: Am. J. Obst. & Gynec. 6:3, 1923.
6. Hollosi, K.: Zentralbl. f. Chir. 64:1747 (September) 1937.
7. Molinengo, L.: Ginecologia 4:41 (January) 1938.
8. Coggi, C.: Ann. di ostet. e ginec. 60:107 (February) 1938.
9. Tomasi, L.: Policlinico 45:940 (May 16) 1938.
10. Brindeau, A.: Rev. franc. de gynec. et d'obst. 34:193 (April) 1939.

(April) 1. Keller, R.: Bull. Soc. d'obst. et de gynec. 24:486 (July)

12. Keller, R.: Bull. Soc. d'obst. et de gynec. 25:178 (Feb-

ruary) 1936. 13. Guggisberg: Schweiz. med. Wchnschr. 51 (April 28)

14. Lockyer, Cuthbert: Practice of Surgery, Dean Lewis, vol. 11, chap. 17, W. F. Prior Co., 1933.

PENICILLIN INJECTED INTO THE BRAIN

What is believed to be the first reported case of the injection of penicillin directly into the brain as an adjunct to injecting it into the spinal column for the treatment of meningitis is reported in The Journal of the American Medical Association for July 8 by Captain William S. McCune and Captain Jack M. Evans, Medical Corps, A. U. S. This case of staphylococcic meningitis is presented, they say, chiefly to show that injection into a ventricle or cavity of the brain as an adjunct to the spinal column route of administration is possible without untoward reactions and with good effect. Introduction of a needle into the ventricle in the acute stage of meningitis, they warn, should be performed with caution, and not until penicillin has been given intraspinally for several days.

CASE REPORTS OF BARNES HOSPITAL

CLINICAL AND POSTMORTEM RECORDS USED IN WEEKLY
CLINICOPATHOLOGIC CONFERENCES AT BARNES
HOSPITAL, ST. LOUIS

W. BARRY WOOD, JR., M.D., and ROBERT A. MOORE, M.D., Editors

CASE 49

PRESENTATION OF CASE

L. K., a 26 year old white laborer, entered Barnes Hospital on November 12 and died November 24, 1943.

Chief Complaints.—Vomiting, headaches, impaired vision, swelling of the ankles, palpitation and loss of weight.

Family History.—Mother had high blood pressure.

Past History.—The patient had considered himself in good health until the present illness. He had worked as a laborer for several years and was accustomed to hard work. He used no tobacco, alcohol or drugs other than a laxative. Except for incidental injuries, he recalled no medical attention. His accustomed weight was 200 pounds.

Present Illness.—In December, 1942, the patient fell from a tractor and struck his shoulder and head. He was treated in a local hospital, where he remained for five or six days and returned to work three weeks later. He was not informed at that time of any systemic disturbance. In April, 1943, he suddenly began to vomit green material and similar attacks occurred as frequently as five or six times a day. There were no associated symptoms at the onset. His physician sent him to a hospital for examination and at that time he was told his blood pressure was high. The vomiting persisted and the patient developed severe frontal headaches which later became occipital and frequently preceded vomiting. Headaches had been continual and occurred almost daily. Later, in April, 1943, he awakened one morning with markedly impaired vision in the left eye, which slowly improved. The right eye was unaffected. The patient had swelling of the ankles at night, frequency of urination, frequent nose bleeds and bleeding from the gums, which developed in that order although he was unable to state specifically the date of onset of each. During this period of illness the patient lost about 15 pounds. He gradually became irritable and worried about his long confinement and there was progressive weakness. An accompanying letter from the patient's physician indicated that during the last two months the patient had been taking sodium thiocyanate in doses to maintain a blood concentration of 20 mg. per cent. Before this medication was started, it was stated that the blood pressure had been 240/140 and a recent reading had recorded it as 180/135.

Physical Examination.—Temperature was 37 C., pulse 90, respiration 24, blood pressure 200/150. The patient appeared chronically ill and pale. He was well nourished and developed. There was some

flushing of the cheeks. The eves were normal to external examination except for pale conjunctivae. The fundi revealed evidence of recent hemorrhages, bilaterally. The gums were bleeding. The throat appeared to be normal. There was slight diminution of breath sounds over the right lung anteriorly. but no other abnormalities in the lungs. The heart was overacting with marked visual and tactile pulsations. The apex was percussed in the fifth interspace 2 cm. to the left of the midclavicular line. There was no thrill; the rhythm was regular and there was a systolic murmur over the mitral region. The aortic second sound was somewhat accentuated. There was some resistance to deep palpation in both flanks but no masses or tenderness were noted in the abdomen. The prostate was small, firm and not tender. There was some erythema of the hands and feet which were cold and clammy. No edema was noted. Neurologic examination showed no abnormal findings.

Laboratory Findings.—Blood count: red cells 4,-530,000, hemoglobin 14.2 grams, white cells 18,600, differential: basophils 3 per cent, eosinophils 1 per cent, "stab" forms 5 per cent, segmented forms 68 per cent, lymphocytes 20 per cent, monocytes 4 per cent. Urinalysis: specific gravity 1.011, albumin 4 plus, occasional red blood cells, a few white blood cells, hyaline and granular casts. Kahn reaction was negative. Stool examination was normal. Blood chemistry: sugar 127 mg. per cent, nonprotein nitrogen 17 mg, per cent, total protein 7.2 grams per cent, albumin 5.2, globulin 2.0. Culture of urine from bladder and from the right and left ureters showed no growth. Roentgenograms of the urinary tract, intravenous pyelography, showed delayed function of both kidneys. Retrograde pyelograms showed pyelonephritis, left, and some rotation of the right kidney, which was pushed downward. Chest films showed an area of pulmonary infiltration lying in the third and fourth interspaces on the right side. The superior margin of this was somewhat demarcated. Diagnosis: pneumonia, right middle lobe. Barium enema was indeterminate. Electrocardiogram: T waves isoelectric in lead I, inverted in leads II and III, depressed S-T segments in leads II and III. Interpretation was myocardial damage.

Course in Hospital.—Genito-urinary consultation: On cystoscopy the bladder appeared normal. Urine from right and left ureters each showed albumin 2 plus, and delayed appearance of phenolsulphonphthalein. The blood pressure on daily readings showed variations between 180/130 and 240/170. Urine specimens revealed a range of concentration between 1.010 and 1.020. Albumin was 4 plus and casts were constantly present. The depression of the right kidney on roentgenography led to a suspicion of a right adrenal tumor. An exploration of the right kidney region was decided upon with lumbar sympathectomy should adrenal findings be normal. The patient was operated on on November 24. An incision was made exposing the twelfth rib, the anterior two thirds of which was excised subperiosteally. The incision was then

extended to expose the kidney and retroperitoneal space. The kidney appeared to be pushed outward and rotated, giving the impression that there might be a tumor above and medial to it. Twenty minutes after induction of anesthesia, the blood pressure became imperceptible and the pulse weak and rapid. Blood, fluids and stimulants were given without improvement in the patient's condition. The wound was closed without further procedures. In spite of shock treatment, the patient expired 2 hours and 35 minutes after induction of anesthesia.

CLINICAL DISCUSSION

DR. HARRY ALEXANDER: No diagnosis of adrenal tumor was made with any certainty during this patient's life, and we cannot make one with certainty until the organs are shown to us. The question arises, if an adrenal tumor is demonstrated, will this have any relevance to the history, or will it be coincidental? Dr. Massie, what is your opinion?

Dr. Edward Massie: A diagnosis of adrenal tumor would fit in very well with the history, especially in view of the additional facts that Dr. MacFarlane gave us, not mentioned in the record, about the other hospital admissions. The fact that this patient had such great variation in blood pressure would be a classical finding in any tumor of the adrenal medulla. The clinical picture also would be in keeping. There are other factors, however, that do not fit so precisely into the picture. For example, this patient developed continuous hypertension. To reconcile that finding, one would have to assume that the patient had the tumor for a long time.

Dr. ALEXANDER: Are you thinking of any particular tumor of the adrenal?

Dr. Massie: There is a peculiar tumor called pheochromocytoma.

Dr. Alexander: Of what structure would this tumor be Dr. Bulger?

DR. HAROLD BULGER: Of the adrenalin-secreting tissue of the sympathetic nervous system.

DR. ALEXANDER: Would this have to do with sympathetic nerve cells or chromaffin?

DR. BULGER: With chromaffin cells.

Dr. Alexander: This tumor is one of a group of tumors known as paragangliomata. I believe pheochromocytoma has to do particularly with the chromaffin cells. It may occur wherever chromaffin cells are found. Dr. Massie, you mentioned that the characteristic feature of this tumor is paroxysmal elevation of blood pressure and pulse. Certainly, according to the record, at one time this patient had a normal blood pressure, and at other times it was very high. You also brought out that this patient developed a consistently high blood pressure. Is that in keeping?

Dr. Massie: I have seen one case report of a patient who had had paroxysmal hypertension, and subsequently developed continuous hypertension. At autopsy this type of tumor was found. It is apparent that a patient will have continuous hypertension as the condition is prolonged.

Dr. Alexander: Why?

Dr. Massie: He no longer requires the stimulus of adrenalin, but there are arterial changes which promulgate the hypertension.

Dr. Alexander: By analysis of the tumor it has been proved that pheochromocytoma contains adrenalin.

Dr. Massie: It has been said that a person with this tumor can squeeze out a little more adrenalin merely by turning in bed, and thus produce the paroxysmal hypertension.

Dr. Alexander: What else is characteristic of this tumor besides variation in blood pressure and pulse?

Dr. Massie: Initially, these patients do not have a significant disturbance in renal function. Subsequently, they may have a good deal of renal damage.

DR. ALEXANDER: Are the patients with marked renal damage those who maintain a high blood pressure continuously? Is there correlation between these two findings?

Dr. Massie: I do not know, but the patient I described had a great deal of renal damage when the hypertension became continuous.

DR. W. BARRY WOOD, JR.: In the cases reported in the literature the patients with persistent hypertension showed signs of nephrosclerosis, and also changes in the eyegrounds, similar to those in this patient.

Dr. Alexander: Would this amount of albumin, red cells and casts be a little excessive in view of the series reported?

DR. WOOD: The albumin would be a little excessive. Dr. ALEXANDER: What about the eyeground changeschoked disks and exudate?

Dr. Woon: I could find only one case of choked disks. Hemorrhage and sclerotic changes are common.

Dr. ALEXANDER: Is the type of exudate that this man had common?

Dr. Wood: No, but there is no reason why it could not

Dr. Alexander: What else in this case is in keeping with a chromaffin tumor?

DR. WILLIAM OLMSTED: The hyperglycemia.

Dr. Carl Moore: The persistent tachycardia.

Dr. Olmsted: And the leukocytosis.

Dr. Alexander: Is leukocytosis a constant finding?

Dr. Wood: Two out of eighteen cases reported by Howard and Barker had a leukocytosis.

Dr. Olmsted: Adrenalin will give leukocytosis.

Dr. Alexander: Of increased polymorphonuclear leukocytes?

Dr. Olmsted: I think that is part of Cannon's theory. Dr. ALEXANDER: Are there further clinical findings in keeping?

Dr. Edward Reinhard: The age of the patient. Pheochromocytomas usually occur in young people, and this patient is rather young for an essential hypertension.

Dr. Alexander: What is the average age?

DR. WOOD: Thirty.

Dr. ALEXANDER: Are there further important findings in this patient that would conform?

Dr. Massie: The events that occurred in April 1943 the vomiting spells and subsequent events—at first impressed me as hypertensive encephalopathic symptoms. Excessive adrenalin might be another explanation, but I prefer to think that the symptoms were a part of his severe hypertension.

DR. REINHARD: The vomiting might also be explained by the toxic doses of sodium thiocyanate.

Dr. Alexander: What other toxic symptoms does thiocyanate produce?

Dr. REINHARD: Weakness, irritability, delirium, even coma, and death. Occasionally, dermatitis, gastrointestinal symptoms and pain.

Dr. Alexander: Does excessive adrenalin produce vomiting?

Dr. Wood: With these tumors, vomiting is a common finding, and it comes in attacks, as described in this patient. Five attacks a day caused by essential hypertension would be a little unusual. The history is very suggestive of a tumor.

Dr. Alexander: Dr. Heinbecker, does excessive adrenalin cause vomiting?

Dr. Peter Heinbecker: Yes.

Dr. Reinhard: This patient had vomiting long after

the thiocyanate was stopped, so that probably was not a factor.

Dr. ALEXANDER: What other symptoms did the patient have?

Dr. Olmsted: I wonder how the bleeding can be explained, since Cannon's theory is that adrenalin causes an increased coagulation.

Dr. Wood: Would you not expect epistaxis with hypertension?

Dr. Alexander: What other symptoms are in keeping? $\overline{}$

Dr. Wood: The appearance of the patient's face, which was flushed, and his hands, which were cold and clammy.

Dr. Olmsted: If there were a straight hypertension from nephritis or nephrosclerosis, one would expect some anemia. These tumor cases do not show anemia.

Dr. Wood: But the patients do look pale during an attack. The pyelogram is also in keeping.

Dr. Alexander: In most of the cases in the series you quote, did the pyelogram reveal the tumor?

DR. Wood: In a fair proportion. Roentgen rays were taken in seven cases; in three they showed nothing and in four they revealed on which side the tumor was

DR. ALEXANDER: What about the patient's behavior on the operating table?

DR. Wood: It could have been so-called "adrenalin shock." At least one patient in this series died on the table in very much the same way.

Dr. ALEXANDER: Do the patients die after the tumor is removed or during manipulation?

DR. HEINBECKER: In the excitement of being prepared for the operation or during manipulation of the tumor.

Dr. ALEXANDER: A very impressive amount of data has been assembled in favor of the diagnosis of adrenalin-producing tumor. Shall we stop there, or are there other diagnoses that we should consider?

DR. CYRIL MacBryde: The early part of this patient's history was somewhat suggestive of subdural hematoma. He had headaches and vomiting a few months after his fall. We would have to consider that possibility.

DR. ALEXANDER: Yes, eyeground changes, hypertension, headaches and vomiting are all in keeping with an intracranial lesion. What about straight nephrosclerosis—is there anything against that?

DR. HAROLD BULGER: Yes, the roentgen ray findings. We can not explain the kidney film on the right side by that diagnosis.

DR. ALEXANDER: Except for the roentgen ray findings, is everything in keeping?

Dr. Olmsted: The acute nature of the disease is a little unusual for nephrosclerosis or malignant hypertension.

Dr. Wood: Also the paroxysmal character.

Dr. Alexander: Dr. Massie, with a heart of this size, would you say that this lesion has been present for a long time and with considerable intensity?

DR. Massie: The bluntness of the left ventricle in the film indicates a good deal of hypertrophy. I believe it would have to be of many years duration, or be a sudden malignant phase of hypertension.

DR. ALEXANDER: Do these tumors last for many years?

DR. MASSIE: I think they do.

Dr. Heinbecker: Why could this not be an adrenal cortical tumor? They are associated with hypertension.

Dr. ALEXANDER: Dr. MacBryde?

DR. MacBrype: That occurred to me too in reading through the history. The paroxysmal character of the hypertension would be against it, I think. The degree of the hypertension would also be unusual. The hypertension in the cases of adrenal cortical tumor that I have read about was not associated with these signs and symptoms of malignant hypertension. The elevated

blood sugar and the chronic hypertension can occur just as well with cortical as with medullary tumors.

DR. ALEXANDER: Would there not be some pituitary disturbance with an adrenal cortical tumor?

Dr. MacBryde: The physical characteristics of this patient are not those usually associated with Cushing's syndrome, or pituitary basophilism.

Dr. ALEXANDER: Does that satisfy you, Dr. Heinbecker?

DR. Heinbecker: Yes, but I do not think adrenal cortical tumor can be excluded on the basis of the clinical picture. You can get an elevation of the blood pressure in cases of adrenal cortical tumor. It is true that the patient did not have the appearance seen in Cushing's syndrome, but that is not always present. How do you explain the marked sweating?

Dr. Alexander: I cannot explain it.

DR. HEINBECKER: I think it is explicable on the basis of the fact that adrenalin excites the central nervous system, and thereby excites the sweat fibers which, in turn, excite the sweat glands.

DR. ALEXANDER: The possibility of an adrenal cortical tumor certainly should be mentioned. If this were nephrosclerosis would one expect nitrogen retention?

Dr. Olmsted: Yes. I think the patient's age would lead one to think of chronic glomerulonephritis rather than nephrosclerosis.

Dr. Alexander: But there was no edema.

DR. OLMSTED: No, but that is not essential.

Dr. ALEXANDER: Do you believe that it may be primary glomerulonephritis?

Dr. Olmsted: I would put that ahead of chronic nephrosclerosis because of the patient's age.

Dr. Alexander: The diagnoses suggested are: pheochromocytoma, adrenal cortical tumor, glomerulonephritis, nephrosclerosis or malignant hypertension.

Dr. Massie: Patients with paroxyms of hypertension with diencephalon stimulation have been described. That would not explain the roentgen ray findings, however.

Dr. Alexander: No, nor the renal findings. Are there further comments or remarks?

DR. Wood: What about the pulmonary shadow?

DR. ALEXANDER: Dr. Goldman, this patient had a pulmonary shadow, a leukocytosis of 18,000, and when he was in the hospital in May he had pneumonia on that side. Would you interpret that shadow as pneumonia of the middle lobe?

DR. GOLDMAN: I can see very little shadow. It may be a remnant of what he had before, but it is not sufficient to make a diagnosis of pneumonia.

DR. ALEXANDER: There is a great deal to be said for the diagnosis of pheochromocytoma. How do you feel about it, Dr. Wood?

DR. Wood: I agree.

CLINICAL DIAGNOSIS

Pheochromocytoma of adrenal.

DR. ALEXANDER'S DIAGNOSIS

Pheochromocytoma of adrenal.

ANATOMIC DIAGNOSIS

Pheochromocytoma of the right adrenal (413 grams) with partial displacement and rotation of the right kidney and with partial flattening of the upper lobe of the right kidney.

Extension of the pheochromocytoma through the right suprarenal vein into the inferior vena cava.

Arteriolosclerosis, generalized, with necrosis of the arteriolar walls.

Hypertrophy and dilatation of the heart (630 grams).

PATHOLOGIC DISCUSSION

DR. ROBERT MOORE: From a morphologic standpoint our diagnosis of this tumor is pheochromocytoma of the adrenal medulla but, thinking that we might get some additional evidence, we prepared an extract of the tumor, and in dogs compared the pressor effect of 2 cc. of an extract of the tumor with the pressor effect of .1 cc. of 1 to 1,000 adrenalin and .15 cc. of 1 to 1,000 adrenalin. The tumor tissue contained a pressor substance which had the same general effect in the anesthetized dog as did adrenalin.

The liver contained only 1.875 gm. of total carbohydrate and 1 gm. of glycogen per 100 gm. of wet tissue. Dr. Heinbecker tells me that this patient received large amounts of carbohydrate intravenously during the last forty-eight hours of life, so that figure should be much higher. There is reason to believe that something was

driving glycogen out of the liver.

The only other significant chemical finding was an increased value of the catalase of the hepatic tissue.

The feature that is not entirely characteristic of the single diagnosis of pheochromocytoma is the extensive arteriolosclerosis throughout the body, with necrosis of some of the arterioles. The man must have had this condition for some time and developed the anatomic changes frequently associated with hypertension in the smaller blood vessels of the body.

DR. ALEXANDER: Will you comment on the malignancy

of these tumors?

Dr. Moore: Some are benign and some are malignant. Whether you call one malignant or not depends in part on the criteria of malignancy. Invasion of a vein is good evidence of malignancy.

DR. ALEXANDER: Removal is dramatically successful in many instances. Was a pulmonary infarct present? DR. MOORE: There was focal fibrosis, but what the

original injury was I am not prepared to say.

CASE 50

PRESENTATION OF CASE

C. B., a 50 year old railroad engineer, entered Barnes Hospital on December 6, 1943, and died January 3, 1944.

Chief Complaints.—The patient was comatose on admission and the history was pieced together from various sources.

Family History.—Father died at the age of 70

from hypertension.

Past History.—The patient had always been athletic and at one time was a professional weight lifter. For thirty-three years he had been a railroad engineer. His habits were good and he was accustomed to taking a great amount of exercise. Except for a mild attack of pneumonia eighteen years previously with no sequelae, there were no recorded serious illnesses. He had frequent head colds and was obese (weight 230 pounds before present illness). There were no other systemic abnormalities.

Present Illness.—Three years previous to admission, the patient first complained of weakness in his legs and swelling of the ankles, coming on in recurrent attacks and necessitating frequent periods off from work. These attacks were not described further. He accompanied his wife to the Mayo Clinic in February 1943 and while there underwent an examination because of the swelling of his ankles. He was told that it was due to athlete's foot. Shortly after the patient returned home he devel-

oped an attack of watery diarrhea which was called "food poisoning." It persisted for two or three days but he apparently did not regain his strength for some three weeks, at which time he returned to work. He was unable to recover his strength completely and after two weeks he complained of increasing weakness and lassitude. In June 1943, both ears became red, painful and enormously swollen, and a marked infection was present. There were no other associated skin lesions. Sulfonamide drugs were given and the ears slowly improved. At that time a rapidly progressive anemia was discovered. and there followed in order: increasing weakness, pain in the lower costal regions on each side which increased with deep breathing, stiffness and slight swelling of both hands, pain and swelling in both knees, night sweats and marked loss of hair. Because of these symptoms the patient entered a hospital in Indianapolis from which the following positive laboratory data were secured. Roentgenographic studies revealed exaggeration of the lung markings. The white blood count varied from 2,500 to 6,200 with a marked shift to the left in the hemogram. Albumin and a trace of pus were persistently present and red blood cells were found frequently in the urine. Agglutination with B. proteus OX19 was positive on two occasions in 1:80++ and 1:160+; later negative at the State Laboratory. A tuberculin skin test gave a strongly positive response. The patient remained in the hospital for six weeks where his course was constantly downhill although he received various treatments including sulfonamide drugs. He was transferred to Barnes Hospital for further study.

The patient belonged to a gun club and had made his own bullets for many years. A chemist recently had tested his blood and urine and told him that both were markedly positive for lead.

Physical Examination.—Temperature was 38 C., pulse 140, respirations 24, and blood pressure 120 60. The patient was a large, well developed man with evidence of muscle wasting and loss of weight. He appeared critically ill, was completely irrational and was muttering to himself. He could not be aroused. At times a coarse, generalized tremor was noted. The skin was dry and hot. There were numerous petechial spots on the forearms, hands, legs and feet and large purpuric areas in the elbow folds where fluids had been administered. There was a pallor to the skin and mucous membranes and some icterus which was seen also in the conjunctivae. Fundi showed large and small hemorrhages and one area of chorioretinitis on the right. The buccal mucosae revealed numerous hemorrhages and there was severe pyorrhea of the gums. There were fissures at the angles of the mouth. Examination of the lungs revealed a high right diaphragm and somewhat diminished breath sounds throughout. Extrasystoles were noted in the examination of the heart but no other abnormalities were recorded. The abdomen was somewhat distended but no masses, tenderness or resistance were present. There was marked edema over the dorsa of the feet and cutaneous edema of the back.

All tendon reflexes were depressed but there were no localizing neurologic findings.

Laboratory Findings.—Blood count: red cells 1,-960,000, hemoglobin 6.1 grams, white cells, 3,250, differential: juvenile forms 5 per cent, "stab" forms 20 per cent, segmented forms 55 per cent. lymphocytes 16 per cent, monocytes 4 per cent. Urinalysis: specific gravity 1.016, albumin 4 plus, many granular casts. Bence-Jones protein was present. Kahn test was negative. Blood chemistry: nonprotein nitrogen 22 mg. per cent, sugar 111 mg. per cent, total protein 6.4 grams, albumin 1.9, globulin 4.5. Icterus index 50. Calcium 8.8. phosphorus 2.8 mg. per cent. Direct Van den Berg 4.35 mg., indirect 5.61 mg. Electrocardiogram: T waves low upright in lead III; slurring, notching and low voltage in all leads. Frequent premature extrasystoles. Interpretation: myocardial damage. Mean corpuscular volume 86 cu. mm., mean corpuscular hemoglobin 30 cu. mm., mean hemoglobin concentration 35 per cent. Sternal marrow very cellular: basophils 1 per cent, segmented forms 21 per cent, primitive cells 5 per cent, eosinophils 1 per cent, "C" myelocytes 19 per cent, metamyelocytes 2 per cent, band forms 6 per cent, plasma cells 45 per cent, normoblasts 5 per cent, late erythroblasts 1 per cent, early erythroblasts 1 per cent, 7 red blood cells per 100 white blood cells. Prothrombin time, 50 seconds, control 20 seconds. Cephalin flocculation test 2 plus. Stool examination gave normal findings. Roentgenograms of the chest revealed aortic lengthening, peribronchial infiltration of indeterminate nature and signs of old pleurisy at both bases. Hand and wrist joints showed no evidence of bone change.

Course in Hospital.—During the eight days that the patient survived, he ran a consistently high, swinging temperature with a maximum of 40 C. The pulse rate ranged between 110 and 140 beats per minute. Hemological consultation indicated that the patient had a myelophthisic type of anemia which was compatible with marrow infiltration. The marrow showed large numbers of cells which were taken to be abnormal plasma cells of the myeloma type. Many of them had two nuclei and some were in amitotic division. The identity of the abnormal cells might be questioned. The patient's course was continually downhill with rapidly developing stupor and increasing jaundice. In spite of two transfusions of whole blood and one of plasma, together with further symptomatic treatment, he failed to respond. The abdomen became distended, there was dulness in the flanks and many rales appeared throughout the lungs just before he expired.

CLINICAL DISCUSSION

DR. ALEXANDER: This case is a complicated one. This man, 50 years of age, was apparently in good health, except for athlete's foot, at the time he was examined at the Mayo Clinic. Shortly after this, symptoms of diarrhea, weakness, skin lesion, pains in the chest and loss of hair appeared. When seen at the time of the first examination, lesions were found in the ears and a diagnosis of disseminated lupus was made. Dr. Weiss, do you believe that this was disseminated lupus?

DR. RICHARD WEISS: I would not make that diagnosis because the skin lesions were not characteristic of lupus erythematosus.

Dr. Alexander: One may have lupus without a skin lesion, may he not?

Dr. Weiss: I have had no cases such as this in my experience. Such cases might be included in the lupus syndrome.

Dr. Alexander: What is the sex ratio of disseminated lupus?

DR. WEISS: The incidence is much greater among women. In the thirteen patients I have seen, ten have been women and three have been men.

Dr. Alexander: Infiltration of the bone marrow would not occur in lupus.

Dr. Weiss: That would rule it out. Plasma cell infiltration does not exist in lupus.

DR. ALEXANDER: This man was said to have had lead in the blood stream and in the urine. Dr. Olmsted, would you say that this patient had lead poisoning?

DR. WILLIAM OLMSTED: This man's illness was too

acute to have been lead poisoning.

DR. ALEXANDER: We are told that this patient made his own bullets and shaped the molds with his teeth.

Dr. Kurt Salomon: I do not feel that this could be lead poisoning because the onset of the patient's illness was too acute in relation to his exposure to lead. Furthermore the blood smear did not present the type of picture one would see in lead poisoning, especially with the absence of a large number of stippled erythrocytes.

Dr. Alexander: What about his encephalopathy? When he entered the hospital he was in coma.

DR. SALOMON: Lead encephalopathy clears up after a certain time if the patient is no longer exposed to lead

DR. CYRIL MACBRYDE; I think that there is some evidence of lead poisoning. The patient did not have an acute illness. He had been ill for three years with weakness of the legs and swelling of the ankles. This is fairly characteristic of early lead poisoning. patient also developed some form of severe renal damage and anemia. It is possible that the patient had lead encephalopathy.

Dr. Carl Moore: The anemia of lead poisoning is usually of more moderate degree. There are usually three million or more red cells unless a hemolytic anemia develops. Occasionally severe hemolytic anemia does accompany lead poisoning. This man certainly did not have any evidence of increased hemolysis; there was no jaundice, no elevation of reticulocytes and no erythroid stimulation to the marrow.

DR. ALEXANDER: Does polychromatophilia exist in lead poisoning?

Dr. Carl Moore: It is often quite marked.

DR. ALEXANDER: The important thing is that this man had infiltration of the bone marrow. Dr. Moore, what is your opinion?

DR. CARL MOORE: I would like to review very briefly the order in which several of the bits of laboratory data were obtained. We were quite surprised to find the great increase in plasma cells. That led us to suspect multiple myeloma, but we have learned that plasma cells may be increased in the marrow in other conditions. For that reason we requested that roentgenograms of the bones be taken, that the urine be examined for Bence-Jones protein and that plasma proteins be determined. When the globulin is elevated and when Bence-Jones protein is present in the urine, the diagnosis of multiple myeloma is a likely one. Since, however, there were no bone lesions, we were inclined to believe that this patient had a diffuse myelomatosis.

DR. ALEXANDER: Would you discuss myelophthisic

DR. CARL MOORE: A myelophthisic anemia may re-

sult whenever the bone marrow is infiltrated with abnormal cells, no matter what they may be.

DR. ALEXANDER: In myelophthisic anemia is it not common to find young cells in the peripheral blood?

Dr. Carl Moore: Yes. One usually sees a few myelocytes, and often an occasional nucleated red blood cell. Young cells are not constantly present, however.

DR. ALEXANDER: Do you have any reason to doubt that this is myelophthisic anemia?

DR. CARL MOORE: Certainly that is the most likely

DR. ALEXANDER: There are not many characteristics shown in this type of anemia. What are the common causes?

Dr. Carl Moore: Leukemia is perhaps the most common.

Dr. ALEXANDER: Was this leukemia?

DR. CARL MOORE: I do not think so. The bone marrow did not show the characteristic changes of leukemia. Another common cause of myelophthisic anemia is carcinomatous infiltration of the marrow cavity.

Dr. Alexander: What types of carcinoma produce this

condition most frequently?

DR. CARL MOORE: Carcinoma of the stomach, bronchus, thyroid and prostate and, sometimes, hypernephroma.

DR. ALEXANDER: Is there any reason to suspect carcinoma here?

DR. CARL MOORE: We were not able to detect any clinical or laboratory evidences of a malignant tumor.

Dr. Alexander: Are there any conditions besides carcinoma and leukemia which produce this type of infiltration of the marrow?

DR. CARL MOORE: Yes. One occasionally sees it in tuberculosis and in Hodgkin's disease. It is a common accompaniment of myelosclerosis and osteosclerosis.

Dr. Alexander: Do you think any of these is likely? DR. CARL MOORE: There is no evidence of tuberculosis or Hodgkin's disease. In myelosclerosis and osteosclerosis we usually cannot obtain adequate samples of bone marrow.

Dr. ALEXANDER: How frequently does multiple

myeloma involve the bone marrow?

Dr. Carl Moore: Almost always. The sternal marrow in particular usually is invaded. I. Snapper in his "Medical Clinics on Bone Diseases" says that "In practically every case of multiple myeloma the true nature of the disease is revealed by a sternal marrow puncture.

DR. ALEXANDER: Can the diagnosis of multiple myeloma be made in the absence of localized tumors?

DR. CARL MOORE: There is occasionally a diffuse infiltration of the marrow cavity with the myeloma cells.

DR. OLMSTED: Ewing mentions this possibility too. He describes myeloma without bone destruction.

DR. CARL MOORE: Diffuse myeloma with infiltration of the marrow is rather infrequent but it occasionally is accompanied by a leukemic type of organ infiltration. We would perhaps have to assume that the liver was infiltrated diffusely in this manner if we are to explain the jaundice on the basis of multiple myeloma.

Dr. ALEXANDER: If we are satisfied reasonably with the roentgenograms we might say that there was no tumor. What percentage of cases of multiple myeloma

occur without bone tumor?

DR. CARL MOORE: I do not know. Certainly not more

than 5 or 10 per cent.

Dr. ALEXANDER: The patient had Bence-Jones protein in the urine. Is this finding characteristic of any other condition?

Dr. Carl Moore: Bence-Jones protein is found occasionally in the urine of patients with leukemia, bone tumors and other types of bone diseases.

DR. ALEXANDER: Is it always the same type of protein?

DR. CARL MOORE: I think so.

Dr. Alexander: This patient had albumin of 1.9 and globulin of 4.5. May that be in keeping with low prothrombin time, or merely a sign of hepatic disease? There was actual increase in globulin.

DR. CARL MOORE: There was an actual increase in globulin, but that much of an increase does occur in cirrhosis. The elevated globulin by itself, therefore, does not have much diagnostic significance.

DR. ALEXANDER: Dr. Taussig, you are interested in the study of these proteins. Will you give us your ideas? In multiple myeloma does one always find very

high globulin?

Dr. Barrett Taussig: No, not at all. Many patients have perfectly normal albumin and globulin. Frequently the globulin will be elevated to higher levels, but it is not characteristic of any one diagnosis.

DR. ALEXANDER: What about the incidence of Bence-

Jones protein in the urine?

Dr. Taussig: Bence-Jones protein may be found in the urine when the serum globulin is not elevated

Dr. ALEXANDER: In your experience you found proteins other than Bence-Jones in the urine did you not?

Dr. Taussig: That was one specific case of multiple myeloma in which we found a globulin of 10 grams. I think I was able to demonstrate by immunologic studies that the chief fraction of this globulin was a protein not contained in normal blood serum. However, this was only one case and could not be compared to other cases of multiple myeloma.

DR. ALEXANDER: This patient had an icterus index of 50 and low prothrombin time with an indication of

serious liver damage.

Dr. CARL MOORE: In order to explain the hepatic insufficiency one would have to postulate that the patient either had cirrhosis of the liver in addition or a diffuse leukemic type of infiltration with plasma cells. A patient with this diffuse myelomatosis, presented at this conference a year ago, had this type of leukemic infiltration in the liver.

Dr. Alexander: How do you account for visceral lesions in the multiple myeloma? What about the plasma cells in myeloma?

DR. CARL MOORE: Dr. Wintrobe and many other hematologists believe that multiple myeloma cells are different from ordinary plasma cells. They call attention to the fact that myeloma cells do not usually have a perinuclear clear zone and the nucleus most often does not show the characteristic wheel-spoke arrangement of chromatin.

Dr. Alexander: Does plasma cell leukemia exist?

DR. CARL MOORE: The pathologic changes in these cases resemble those of diffuse myelomatosis but the myeloma cells appear in the peripheral blood.

DR. ALEXANDER: I have heard you frequently remark that globulin may originate from plasma cells. Is that correct?

DR. CARL MOORE: There is an increasing number of publications presenting evidence to show that globulin may originate either from plasma cells or from reticulum cells. I should like to ask Dr. Weiss if the skin lesion in this man resembles at all that of a mycotic infection.

DR. WEISS: One might have an infection of the external auditory canal and transfer that infection to the auricles. On top of this, secondary infection with either a staphylococcus or streptococcus could occur, and a mild streptococcus infection of the auricles and adjoining skin could explain the history which this patient gave.

Dr. Alexander: Was this patient's bone marrow easy to enter?

DR. CARL MOORE: Yes.

DR. ALEXANDER'S DIAGNOSIS

An infection of unknown nature.

CLINICAL DIAGNOSIS

Plasma cell myeloma.

ANATOMIC DIAGNOSIS

Tuberculosis involving liver, spleen, bone marrow, lungs, adrenals and peripancreatic lymph nodes.

Generalized icterus, advanced.

Ascites (2,000 cc.).

Hyperplasia of bone marrow, slight.

PATHOLOGIC DISCUSSION

Dr. Robert A. Moore: In the liver, spleen, bone marrow, lungs, adrenals and lymph nodes, there were small granulomatous lesions. These were characterized by proliferation of epitheloid cells and early necrosis. There were a few giant cells. Stains for bacteria showed a few granular acid-fast bacilli similar to tubercle bacilli. Cultures under aerobic and anaerobic conditions gave a variety of bacteria, but no one organism appeared to be the predominant type. Injection of tissues into two guinea pigs gave lesions similar to those seen in the human tissues, but cultures were again unsatisfactory, but acid-fast bacilli were present in specially stained sections.

Under these conditions the only objective diagnosis is tuberculosis.

ABSTRACTS AND DIGESTS

DERMATITIS FROM CARROTS

Dermatitis from Carrots. Samuel M. Peck; Louis W. Spolyar, and Howard M. Mason. Arch. Dermat. & Syph. 49: 266, 1944.

This is the report of an investigation by the United States Public Health Service of an outbreak of dermatitis occurring among workers processing carrots in a factory engaged in making ration C for the army.

The dermatitis occurred in women who were engaged in trimming carrots by hand, working alongside a conveyor belt carrying the carrots and resting their arms on a metal shelf called an apron, so that their arms were constantly wet with the juice and water coming from cut carrots.

The dermatitis occurred on the palms, the thenar and hypothenar eminences, the dorsa of the hands, the forearms and, in some cases the neck, face and eyelids. It was observed as various clinical types of acute and chronic dermatitis. The incubation period was between seven and ten days; in a few, several months to a year elapsed before the dermatitis was called to the attention of the physician. There was always rapid improvement when the patient was removed from contact with either the raw or cooked carrots.

Seventeen women who had or had had dermatitis were examined. These seventeen and, as controls, eighty persons who had no occupational contact with carrots, were tested by the patch method. It was determined that carrots contain a skin sensitizing principle which is soluble in ether and in water and is found in the raw carrot, in the dried carrot residue, in the carrot juice and in the heated carrot (240 F., fifteen pounds [6.8 Kg.] pressure two and one half hours). It also acts similarly to that of a dilute primary irritant on some persons. All but two of the seventeen patients with dermatitis gave positive reactions, but these two got well

when they stopped handling carrots. All of the women but one with dermatitis and positive patch reactions could eat carrots without inducing symptoms; this one had dermatitis around the mouth and edema of the lips from eating cooked carrots.

The controls were tested by contact with raw carrots on the forearm for twenty-four hours. In two, there resulted scattered areas of punctate redness at the follicular openings, which began fading after forty-eight hours (allergic reactions often persist longer, often become eczematous). These reactions did not vesiculate and resembled the reactions obtained with low concentration of primary irritants. The subjects had no discomfort from eating carrots.

Comment: Since it requires daily contact for seven or more days for carrots to induce dermatitis in the susceptible person, it will not be a frequent factor in the dermatitis of the hands, forearms and face in food handlers.

This article does, however, call attention to food products as a possible cause of such eczematous lesions. One has seen isolated cases of occupational eczema due to contact with string beans, parsnips, asparagus, strawberries, uncooked beef, wheat flour and carrots.

C. H. EYERMANN, M.D.

DERMATITIS AND CONTACT ECZEMA

Dermatitis of the Eyelids. H. H. Hazen, Arch. Dermat. & Syph. 49:253, 1944.

Reports the investigation of thirty-three patients (thirty females and three males) in whom its cause was determined by means of a carefully taken history, by patch tests with the suspected substance and by elimination of the suspected substance and observation of results, in most of whom both upper eyelids were involved and in about one half the number, one or both of the lower lids as well.

The etiologic agents were nail polish, four cases; seborrheic dermatitis, three cases; skin of Florida oranges, face powder, eye drops, Resorcinol, washing powder, two cases each; hearth polish, carbon paper, hair dye, hair wave set, dog hair, ragweed, poison ivy, apple peel, cold cream, vanishing cream, perfume, sulphur ointment, ammoniated mercury ointment, insecticide spray, primrose, black fly (Simulium) bites, one each.

The note is made that other portions of the body, especially the hands and face, also have small patches of dermatitis. A puzzling and conflicting result of this study is that the patients reacting to the skin of Florida oranges did not react either to the skin of California oranges or to the dye used on Florida oranges.

Contact Eczema Due to Nail Polish. William L. Dobes and Philip H. Nippert. Arch. Dermat. & Syph. 49:183. 1944.

Reports on ninety cases (eighty-nine white women and one Negress) due to nail polish; only the eyelids were involved in twenty-two cases, the eyelids, chin and neck in twenty-eight cases. Areas of

the face other than the eyelids, twenty-nine cases; areas on the body other than face and neck, eleven cases

Patch tests were done with seven brands of nail polish, each brand including some of the colorless and some of the colored lacquers, in addition to the nail polish the patient was using. Only two of thirty patients studied in this manner were sensitive to all brands; the remainder reacted to various combinations of the brands, to either the plain or the colored lacquers, or to some of both the plain and colored lacquers. Patch testing with the components of nail polish resulted in the solvents reacting more frequently with the synthetic resins and dyes in lesser frequency.

The patch tests were evaluated by allowing the patient to wear the polishes that gave no positive reactions. Some of the patients gave no patch reaction on the back or forearms, but the dermatitis disappeared when nail polish was not used.

Comment: These articles emphasize that nail lacquer can produce a dermatitis in other places than the eyelids and that the eyelids can be affected by substances other than nail polish. Inquiry into the fidgeting habits of the hands, such as probing the aural and nasal orifices, rubbing the eyes, picking at the inner canthi, the manner of adjusting the hair, dress collar, brassiere, girdle, hose or other garments, the position of the hands during sleep and in repose, and noting the patient's hand movements while under interrogation, will often give the clue when nail lacquer is suspected as the cause of an unusual or asymmetric distribution of eczematoid dermatitis.

An ever present alertness to all possible etiologic agents and their ramifications, combined with percipient questioning, is necessary to uncover contactants other than nail polish.

When patch tests do not react at sites distant from the dermatitis, testing at the border of the dermatitis may result in positive reactions. In the absence of positive reactions, improvement by avoiding and recurrence upon resumption of contact, is the method of proving the suspected contactant.

C. H. EYERMANN, M.D.

CARCINOMA OF THE BREAST

Carcinoma of the Breast, Criteria of Operability. C. D. Haagensen and A. P. Stout, Ann. Surg. 118:859 (November) 1943.

In an effort to determine which of the several clinical factors and signs in carcinoma of the breast were really of importance in determining operability, Haagensen and Stout studied 640 radical mastectomies performed between 1915 and 1934 at the Presbyterian Hospital, New York. They found that eight different conditions, present either alone or combined with other factors, invariably were associated with failure to cure carcinoma of the breast. Those eight factors were considered to be "mandatory contraindications to radical mastectomy." Five other signs were shown to be of grave diagnostic significance, especially if two or more

occurred at the same time. Some factors, usually considered to be ominous, were proven less grave than generally supposed.

CONSTITUTIONAL FACTORS AFFECTING OPERABILITY

- 1. Age. Age is of no great significance. The women 29 or younger who had radical mastectomies had a cure rate comparable to that of the entire group. Elderly patients often had concomitant diseases (diabetes, heart disease) precluding any sort of operative procedure, but for those in good health, old age alone was not found to be a contraindication to radical mastectomy.
- 2. Pregnancy and Lactation. The authors substantiated other observers in finding that carcinoma of the breast during lactation or pregnancy was so aggressive that surgery was useless. However, when pregnancy occurred after complete extirpation of a breast carcinoma, no untoward results were noted.

PHYSICAL SIGNS OF EXTENT OF DISEASE WHICH AFFECT OPERABILITY

- 1. Site. The site of the carcinoma in the breast was of no significance.
- 2. Size. The size of the breast tumor considered alone was of no importance. However, the size roughly bore some relationship to its duration. It was found that the smallest tumors (2 cm. or less in diameter) were associated with the highest incidence of axillary metastasis.
- 3. Multiple Tumors. Multiple tumors of one breast, excluding satellite skin nodules, were of no prognostic significance.
- 4. Elevation of Skin. Local elevation of skin temperature over the tumor, excluding cases of true inflammatory carcinoma, was of no import.
- 5. Color of Skin. Redness of the skin around a carcinoma which was not inflammatory in type did not imply any serious prognosis.
- 6. Fixation of Skin. Fixation of the skin to the underlying tumor did not signify a poor prognosis if there was no ulceration present.
- 7. Ulceration. Ulceration of the skin alone was not serious, but when present in conjunction with other signs of locally advanced disease the outlook became quite grave, although not necessarily fatal.
- 8. Edema. If edema of the skin involved more than one third of the total skin surface of the affected breast, it was invariably associated with a high incidence of local recurrences. None of the 41 patients (more than one third) with extensive skin edema survived five years. Such cases were considered to be categorically inoperable. Limited edema of the skin due to carcinoma in the breast was in itself a serious although not invariably fatal sign.
- 9. Fixation. Fixation of the tumor to the chest wall (with the exception of those tumors found in the inframammary fold) was a grave sign but did not mean that the patient was categorically inoperable.
- 10. Satellite Tumor Nodules. Satellite tumor nodules in the skin over the breast is known by

most surgeons as an ominous sign and the authors agreed that such patients are categorically inoperable. None of their patients with this finding alone were cured.

11. Intercostal or Parasternal Nodularities. Intercostal or parasternal nodularities are caused by the lodgement of a clump of tumor cells in the perforating or intercostal lymphatic channels. There was only one such case in this series and the patient died following mastectomy. The authors, nevertheless, associated this sign with cases which were categorically inoperable, presumably largely from the experience of other workers.

12. Axillary Nodes. Massively enlarged axillary nodes (2.5 cm. in diameter or over) were associated with a 20 per cent five year cure rate, while the cure rate for the entire 640 cases was 36.1 per cent.

13. Fixation of Nodes. Fixation of axillary lymph nodes as the only sign of advanced disease proved to be of serious but not of inevitably fatal significance.

14. Edema of Arm. Edema of the arm occurring before radical mastectomy was invariably associated with a fatal prognosis. This sign was thus taken to signify that the patient was categorically inoperable. Edema of the arm occurring after radical mastectomy was a different problem.

15. Supraclavicular Metastases. Supraclavicular metastases indicated that the patient was categor-

ically inoperable.

16. Inflammatory Carcinoma. The authors found that inflammatory carcinoma was an acute and rapidly fatal form of breast tumor. It was characterized by an increase in size of the affected breast, nipple retraction, the presence of a tumor mass and reddened edematous and warm (inflamed) skin overlying the tumor. It could be confused with a breast abscess. Of the twenty patients with inflammatory carcinoma, none survived five years and the authors classified it as categorically inoperable.

17. Distant Metastases. Distant metastases was per se a sign of inoperability. Roentgenographic studies of the lung and skeleton in conjunction with a thorough physical examination were sufficient in finding most of the distant metastases.

The authors recognized the limitations of the methods used in this study. Often the groups of cases in which only one of the signs of locally advanced disease was present were so small they were not mathematically significant. Radical surgery actually shortened the lives of those patients who showed signs of categorical inoperability. Yet, the six to ten months of additional life followed by certain death for those patients not treated by radical mastectomy should be weighed in the balance against giving the patient every possible chance of cure by operation, even though it be infinitesimally small. The authors recognized this and attempted to formulate practical criteria of operability showing that certain types of cases cannot be cured even by the most radical surgery.

NATHANIEL D. EWING, M.D. EVERETT D. SUGARBAKER, M.D.

BOOK REVIEWS

Backache and Sciatic Neuritis. Back Injuries—Deformities—Diseases—Disabilities. With notes on The Pelvis, Neck, and Brachial Neuritis. By Philip Lewin, M.D., F.A.C.S., Associate Professor of Bone and Joint Surgery, Northwestern University Medical School; Professor of Orthopedic Surgery, Cook County Graduate School of Medicine, Chicago; Lieutenant Colonel, Medical Corps, U. S. Army. Illustrated with 235 Figures. Line Drawings by Harold Laufman, M.D. Instructor in Surgery, Northwestern University Medical School, Chicago; Captain, Medical Corps, U. S. Army. Philadelphia: Lea & Febiger. 1943. Price \$10.00.

It is the opinion of the reviewer that this new work on backache falls into the category of a "must" book for the general practitioner and the industrial surgeon, as well as the orthopedist.

It is well and clearly written and easily understandable. It is replete with photographs, diagrams and charts, and has an exceptionally complete list of references.

My only criticism of the book is in regard to the chapters on physical therapy and manipulation. If these methods of treatment are of value, and I believe they are, then I feel that the book would be of more value to the general practitioner and industrial surgeon had the author devoted more than seventeen pages to these methods of therapy. It is a good book.

F. M. P.

Medical Malpractice. By Louis J. Regan, M.D., LL.B., Member State Bar of California. St. Louis: The C. V. Mosby Company. 1943. Price \$5.00.

This is a timely edition of a subject which is of the utmost and extreme importance to all practicing physicians of this time and age. Not only timely from the point of making a better understanding of the classes or types of malpractice claims or suits, but also due to the fact that at the present time malpractice presents one of the more serious problems confronting the practictioner, particularly at this time in which the physician is seeing a larger number of patients and spending in certain cases a decreased amount of time. It is particularly these types of individuals in which small things may be overlooked by the busy practictioner that lay way for a claim in the future.

The text is written in a rather easy and free style. It is divided into various portions each of which may be read in its own part and understood. The author has introduced to the reader the definition of the various terms that are encountered in law and as they are related to the physician. He has then demonstrated by a large number of cases the various types of negligence or malpractice and has pointed out clearly in each where the physician was at fault. Not only does he show the cases in which the physician was at fault but he also has a goodly number of cases to show where the individual tried to make claim for an unjustifiable wrong.

He has then, in turn, taken the reader through the various phases that might be encountered by the physician. For example, the relationship of hospitals both charitable and private to the patient. A brief resume of the so-called expert witness is also dealt with aptly. The right of privilege communications consent to operations and various miscellaneous procedures such as criminal malpractice, damages and license to practice are each dealt with in some detail. These are all illustrated in a similar manner by case histories and studies to point out the various defects and also show the physician where the loop holes are to be found. At the termination of the book there is a table of cases cited and further references for those who are interested.

A. E. U.

THE JOURNAL

of the

Missouri State Medical Association

Telephone: Newstead 0404-05 623 Missouri Bldg.

Subscription - - - \$3.00 a year in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent.

AUGUST, 1944

EDITORIALS

DEFICIT OF PHYSICIANS

An annual and cumulative deficit of 2,000 physicians a year is estimated in The Journal of the American Medical Association of July 8 as a result of the present situation and in face of new and increased demands for medical service. In protest to the present trend and in support of H. R. 5128 which would modify present legislation, the Committee on Medical Education and Hospitals of the Missouri State Medical Association has sent the following resolution to members of appropriate committees in Congress:

WHEREAS, The Committee on Medical Education and Hospitals has considered the policy of the Selective Service System regarding the deferment of medical and premedical students,

regarding the deferment of medical and premedical students, and

Whereas, The Selective Service System has decided not to defer medical and premedical students after July 1. 1944, and
Whereas, This policy would seriously hamper the proper care of the sick of our state, and

Whereas, It is essential that the citizens of our state receive adequate medical attention at all times and in order to accomplish this the continuous training of premedical and medical students is necessary, therefore be it

Resolved, That H. R. 5128 relating to the deferment of premedical and medical students merits our approval and we strongly urge your favorable consideration for the early passage of this bill.

The Journal of the American Medical Association says in part:

"In January 1944 it seemed that civilian and military needs for doctors would be met reasonably satisfactorily by the arrangement in which the 55 per cent of entering medical school classes would be provided by the Army Specialized Training Program, 25 per cent by the Navy V-12 Program and 20 per cent from civilian sources. In the past six months this program has rapidly deteriorated. Today medical educators and the medical profession of the country refuse to accept the responsibility for the acute shortage of medical care which will threaten this country within a few years if current regulations and policies persist. The responsi-bility must rest with the armed forces, the Selective Service System, the President and the Congress of the United States.

"In February the Army drastically curtailed the Army Specialized Training Program and has since renegotiated its contracts with medical schools to provide 28 per cent of the 1945 entering classes instead of 55 per cent, increasing to 47 per cent the numbers medical schools must obtain from civilian sources.

"In April the Selective Service System abolished all further occupational deferments of premedical and medical students not enrolled in medical schools by July 1, 1944. As a consequence, it was estimated that

the entering classes of 1945 would be reduced 25 to 30

"The latest measure still further jeopardizing medical education and medical care was the passage of the Army appropriation bill by Congress June 21. This bill includes the following provision:

Provided, That no appropriation contained in this Act shall be available for any expense incident to education of persons in medicine (including veterinary) or dentistry if any expense on account of this education in such subjects was not being defrayed out of appropriations for the military establishment for the fiscal year 1944 prior to June 7, 1944. . . .

'This provision would seem to eliminate from 1946 entering medical classes the 28 per cent of places contracted for by the Army. Even if the Navy increases its quota from 25 per cent to 31 per cent, schools will be obliged to obtain 69 per cent of their students from women and physically disqualified males. Nothing even approaching this number of qualified civilian students is available. Classes will probably be half filled in the country at large.

"Should an adjustment not be made to correct the present alarming situation, a tremendous reduction of graduates after the war will ensue. Although schools will continue the accelerated program, they will admit classes only once annually instead of every nine months. This of itself will reduce the number of graduates from the present annual average of 7,000 to 5,000. If classes can be only half filled, this number will be reduced to 2,500 graduates per year. Since 3,300 to 3,500 physicians die each year, there will result an annual and cumulative deficit of 2,000 doctors a year.

"Still further reductions in graduates and permanent damage to the 'plant' of medical education will result from some schools being forced to close their doors because of drastically curtailed enrolments. An unknown number of war casualties among medical officers will also reduce the supply of physicians

"These reductions in medical graduates will occur in the fact of new and increased demands for medical services, mainly from the civilian population, the standing army and navy, the Veterans Administration and the liberated countries of Europe.

'Full support should be forthcoming from the medical profession for the Miller bill (H. R. 5128), with modifications, which reads:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled. That section 5 of the Selective Training and Service Act of 1940, as amended, is amended by inserting at the end thereof a new subsection reading as follows:

"(n) There shall be deferred from training and service under this Act in the land and naval forces of the United States, as necessary to the maintenance of the national health, safety, and interest, in each calendar year not less than six thousand medical students and not less than four thousand dental students. As used in this subsection the term 'medical or dental students and so in sursection the term 'medical or dental student's means (1) a person who is enrolled in, and who is pursuing a course of instruction prescribed for the degree of doctor of medicine at an accredited medical college; and a person who is enrolled in, and who is pursuing a course of instruction at an accredited college or university (satisfactory completion of which will make such person eligible for enrollment in an accredited medical or dental college) with the bona fide intention of entering an accredited medical or dental college) with the bona fide intention of entering an accredited medical or dental college and pursuing and completing the course of instruction prescribed for the degree of doctor of medicine or for the degree of doctor of dentistry."

"Protests against the blind disregard for medical care in the future should be addressed to the Senate (Senator Robert R. Reynolds, Chairman) and House (Representative Andrew J. May, Chairman) Committees on Military Affairs, the Senate Committee on Education and Labor (Senator Elbert D. Thomas, Chairman) and the House Committee on Education (Representative Graham A. Barden, Chairman). Every state medical society, medical school and medical scientific society should express itself in no uncertain terms on these developments.'

NEWS NOTES

Major Benjamin H. Charles, St. Louis, has received the Bronze Star Medal.

Dr. C. E. Burford, St. Louis, presided as president at the meeting of the American Urological Association in St. Louis, June 19 to 22.

Dr. Delon A. Williams, Kansas City, was elected president of the American Golfing Association at the meeting in Chicago in June.

Dr. Frank R. Teachenor, Kansas City, was elected president of the Kansas City Surgical Society, with Dr. J. E. Castles, vice president, and Dr. Eugene O. Parsons, secretary-treasurer.

Capt. James P. Murphy, M.C., of St. Louis, has been recommended for the Bronze Star for meritorious service while on offensive patrol in Bougainville.

The Seventieth General Hospital Unit, headed by Lt. Col. Curtis H. Lohr, on duty with the Army in the Mediterranean war zone, has been awarded the Army E for excellence in performing outstanding service in their area.

Dr. H. I. Spector, St. Louis, was re-elected Regent of the American College of Chest Physicians for District No. 7 at a meeting in Chicago June 10 to 12. The district includes Missouri, Arkansas, Kansas and Oklahoma. His term is for three years.

Officers of the Kansas City O. O. R. L. Society were recently reelected as follows: President, Dr. Edgar W. Johnson, Kansas City; first vice president, Dr. John Billingsley, Kansas City, Kansas; second vice president, Dr. Luther J. Ferguson, St. Joseph; secretary, Dr. W. E. Keith, Kansas City; treasurer, Dr. W. Byron Black, Kansas City.

Dr. George Dock, Los Angeles, was awarded the Distinguished Service Medal by the House of Delegates of the American Medical Association. Dr. Dock was professor of medicine at Washington University School of Medicine from 1910 to 1922. Dr. Dock is known for his work on the pathology of malaria and dysentery, protozoan diseases of the blood, pernicious anemia, the ductless glands and hookworm.

RANDOM OBSERVATIONS

By a ROVING REPORTER

What is medicine doing to plan for the future? The recent increase in the birth rate means an increased demand for pediatricians in the near future. The preventive medicine in the last three decades bids fair to change the character of the population in the next two decades. Where are the geriatrists to be found? What are schools and societies doing to diffuse knowledge of diseases of older people? Medicine can remain individualistic and still participate in a planned society.

One probable reason for the greatness of American industry has been the willingness of the sponsors to "plow" money back into development and research. How many physicians have given something for the betterment of their profession? The St. Louis Medical Society reports a capital endowment of \$61,543.75 on December 31, 1943. More is needed by societies and schools of medicine to function effectively. The Lord helps those who help themselves. Foundations and the rich philanthropists can not do everything.

Regardless of what one may think of the concept of communism and the realistic politics of Mr. Stalin, some figures from the U.S.S.R. deserve respect. In comparison with Czarist Russia and the first World War deaths from diphtheria are 20 per cent lower, and from typhoid 29 per cent lower; 70 per cent of wounded soldiers are returned to active duty; the mortality from gas-gangrene is 3 per cent; and the general mortality rate has decreased by 50 per cent.

Ideas concerning planned parenthood have received two shocks recently. Both came from within the ranks of medicine, the first from a brilliant young medical artist, and the second from a professor of obstetrics. A careful statistical analysis failed to give any support to the dictum that two years should be allowed between births. (See Eastman in April number of American Journal of Obstetrics and Gynecology).

Your reporter sees a paradox in medical journals and medical advertising. Through the bureau of the A.M.A. the claims for drugs are rigidly controlled in the advertising of our own journals. Then we, the authors of the scientific papers, allow republication in abstract form in journals which carry pages of the most extravagant claims. It would appear that the left hand does not know what the right hand is doing. The copyright law is still in effect.

Every physician now in the Armed Forces will on return to private practice use plasma in quantities not thought of before the war. It is time we gave some thought to possible sources of human plasma. The Red Cross Service will not be available for civilians.

DEATHS

May, Henry Allen, M.D., Washington, a graduate of the Beaumont Hospital Medical College, St. Louis, 1894; Fellow of the American Medical Association; member and former secretary, treasurer and delegate of the Franklin County Medical Society; aged 72; died January 31.

Hartmann, Jacob A., M.D., St. Louis, a graduate of Washington University School of Medicine; Fellow of the American Medical Association; member of St. Louis Medical Society; aged 75; died February 3.

Enloe, Cortez F., M.D., Jefferson City, a graduate of Vanderbilt University School of Medicine, Nashville, 1901; honor member of the Cole County Medical Society; aged 64; died March 7.

Hays, William H., M.D., Hannibal, a graduate of Washington University School of Medicine, 1898; honor member and former president of the Marion-Ralls County Medical Society; aged 69; died March 26.

Stratton, Charles D., M.D., Rothville, a graduate of the Missouri Medical College, St. Louis, 1883; Fellow of the American Medical Association; honor member and former president and delegate of the Chariton County Medical Society; aged 86; died April 5.

Fulbright, Charles H., M.D., St. James, a graduate of Missouri Medical College, St. Louis, 1889; member of the Phelps-Crawford-Dent County Medical Society; aged 79; died April 18.

Holley, Albert E., M.D., St. Joseph, a graduate of Ensworth Medical College, St. Joseph, 1897; honor member of the Buchanan County Medical Society; aged 80; died April 28.

Douglass, William H., M.D., Benton City, a graduate of Barnes Medical College, St. Louis, 1898; honor member of the Audrain County Medical Society; aged 70; died May 1.

Simpson, James Y., M.D., Evanston, Illinois, a graduate of Columbia University College of Physicians and Surgeons, New York, 1882; honor member of Jackson County Medical Society; aged 83; died May 2.

Smith, David E., M.D., Bonne Terre, a graduate of Washington University School of Medicine, 1914; Fellow of the American Medical Association; member and former secretary and president of the St. Francois-Iron-Madison-Washington-Reynolds County Medical Society; aged 55; died May 5.

McNeil, Charles A., M.D., Sedalia, a graduate of St. Louis University School of Medicine, 1906; Fellow of the American Medical Association; member of the Pettis County Medical Society; aged 69; died May 17.

Hamel, Albert H., M.D., St. Louis, a graduate of Washington University School of Medicine, 1890; Fellow of the American Medical Association; honor member of the St. Louis Medical Society; for Councilor and President of the Missouri State Medical Association; aged 77; died May 17.

Cook, Fountain Lee, M.D., Independence, a graduate of the University Medical College of Kansas City, 1897; honor member of the Jackson County Medical Society; aged 81; died May 24.

Grace, Haynie M., M.D., Chillicothe, a graduate of the Missouri Medical College, St. Louis, 1891; Fellow of the American Medical Association; member and former secretary and delegate of the Livingston County Medical Society; aged 78; died June 13.

BOOK REVIEW

PICTORIAL HANDBOOK OF FRACTURE TREATMENT. By Edward L. Compere, M.D., F.A.C.S. Associate Professor of Surgery, Northwestern University Medical School; Chairman, Department of Orthopaedic Surgery, Wesley Memorial Hospital; Consulting Orthopaedic Surgeon, Chicago Memorial Hospital; and Sam W. Banks, M.D., Associate in Surgery, Northwestern University Medical School; attending Orthopaedic Surgeon, Chicago Memorial Hospital. Chicago: The Year Book Publishers, Inc. 1943.

This is a small, compact volume of 350 pages, profusely illustrated.

The authors state, "In preparing this book, the authors have avoided presentation of several different methods of management for each type of injury. In is better to know one method well and to be able to apply it with assurance and skill than to have a less thorough knowledge of several technics. Therefore the simplest principles and methods by which the authors themselves have been able consistently to obtain a satisfactory endresult have been presented and no references are made to certain methods of fracture management which have proved successful in the hands of other physicians. Little reference has been made to the wide assortment of gadgets and automatic reducing devices because they are seldom available to the general practitioner. On the other hand, we have tried to present with especial clarity the technic of skeletal traction and the use of internal fixation for certain fractures."

The text is divided into five parts: I. General Considerations of Treatment of Fractures and Dislocations; II. Fractures and Dislocations of the Upper Extremity, Scapula and Clavicle; III. Fractures and Dislocations of the Lower Limbs; IV. Fractures and Dislocations of the Trunk; V. The Face and Skull.

The authors have done a good piece of work in presenting the treatment of fractures in a simple manner and have not complicated the subject by presenting too many different opinions.

The book should prove very valuable for all who have to treat fractures. A. O.

COUNCILOR DISTRICT AND SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL 1944

(Societies Which Have Paid Dues for All Members and Date Placed on Honor Roll)

Benton County Medical Society, November 17, 1943.

Chariton County Medical Society, December 1, 1943.

Camden County Medical Society, December 7, 1943.

Webster County Medical Society, December 7,

1943. Perry County Medical Society, December 11,

1943.
Moniteau County Medical Society, December

15, 1943. Carter-Shannon County Medical Society, De-

cember 15, 1943.

Ste. Genevieve County Medical Society, December 20, 1943.

Scott County Medical Society, December 20, 1943.

Dallas-Hickory-Polk County Medical Society, December 28, 1943.

Holt County Medical Society, January 10, 1944.

Mercer County Medical Society, January 12, 1944.

Pulaski County Medical Society, January 15, 1944.

Macon County Medical Society, January 15, 1944.

Stoddard County Medical Society, January 19, 1944.

Miller County Medical Society, January 29,

Christian County Medical Society, February

3, 1944. Cass County Medical Society, February 4,

1944. Howard County Medical Society, February 18,

1944. Newton County Medical Society, February 21,

1944. New Madrid County Medical Society, March

4, 1944. Morgan County Medical Society, March 6,

1944.

Dent County Medical Society, March 23, 1944.

Callaway County Medical Society, March 23, 1944.

1944.

Greene County Medical Society, April 20, 1944.

DeKalb County Medical Society, April 24, 1944.

Jasper County Medical Society, May 4, 1944. Pettis County Medical Society, May 20, 1944. Cooper County Medical Society, June 19, 1944. Pike County Medical Society, July 5, 1944.

Phelps-Crawford County Medical Society, July 6, 1944.

Boone County Medical Society, July 14, 1944.

ASSOCIATE EDITORS: COUNCILORS OF THE TEN COUNCILOR DISTRICTS

FIRST COUNCILOR DISTRICT

H. E. PETERSON, ST. JOSEPH, COUNCILOR Nodaway-Atchison-Gentry-Worth Counties Medical Society

The Nodaway-Atchison-Gentry-Worth Counties Medical Society held a dinner meeting at the Linville Hotel, Maryville, April 3, at which the president, Dr. Claude D. Haskell, Tarkio, presided. Members present were Drs. Charles T. Bell, J. A. Bloomer, Leslie E. Dean, W. R. Jackson, Robert C. Person and Wm. M. Wallis, Jr., Maryville; Eugene Crowson, Pickering; Charles D. Humberd, Barnard; Charles W. Kirk, Hopkins; Henry C. Bauman, Fairfax; John M. Davis, Claude D. Haskell and Clifton M. Waugh, Tarkio; Frank H. Rose, Albany; Samuel E. Simpson, Stanberry; Pren J. Ross, Grant City; and Drs. Jesse Miller, Dillard J. Thomas and E. L. Thomas, dentists, Maryville. Guests were Drs. Fred L. Reutter, U. S. Navy Training Unit, Northwest Missouri State Teachers College, Maryville; Charles H. Flynn and Robert J. Matthews, Clarinda, Iowa; James H. Gasson, Bedford, Iowa; Percy S. Pelouze, Philadelphia; R. R. Wolcott, U. S. Public Health Service, Jefferson City; and four Public Health Service nurses from Worth County.

Dr. Percy S. Pelouze spoke on "Gonorrhea Control Today." His talk was illustrated by lantern slides and gave especial attention to and emphasis on the inflammatory pathologic condition and the immunology of gonococcal infections; these were then correlated with current therapeutic ideas.

As an unusual clinical novelty, a male Negro, 22 years old, appeared before the Society. Drs. Wolcott and Reutter measured him showing a stature of 223 cm., a reach of 240.5 cm., a stretch of 296 cm., and a sitting height of 111 cm.; weight 127.7 kg.

CHARLES D. HUMBERD, M.D., Secretary.

SIXTH COUNCILOR DISTRICT

R. W. KENNEDY, MARSHALL, COUNCILOR Cass County Medical Society

The regular quarterly meeting of the Cass County Medical Society was held in Peculiar, June 22, preceded by a fried chicken dinner.

Dr. Vincent T. Williams, Kansas City, spoke on "The

Physiological Management of Burns."

Dr. C. Edgar Virden, Kansas City, and Dr.

Dr. C. Edgar Virden, Kansas City, and Dr. Harry C. Gilkey, Kansas City, reported on the Chicago session of the American Medical Association.

DAVID S. LONG, M.D., Secretary.

EIGHTH COUNCILOR DISTRICT

WALLIS SMITH, SPRINGFIELD, COUNCILOR Barry-Lawrence-Stone County Medical Society

The Barry-Lawrence-Stone County Medical Society held its regular monthly meeting May 9 at Crane.

A complimentary dinner was served by the women of the Presbyterian Church in honor of Dr. Homer L. Kerr, Crane. Twenty-two members and visitors were

Dr. Wallas Smith, Springfield, spoke, giving statistics from the Procurement and Assignment Service of the state. He pointed out that Missouri has more than done

its share in supplying physicians for the Armed Forces, which is one reason for the critical shortage of doctors in certain rural areas of Missouri. He stressed the importance of training more Missourians for the profession and brought out that this could best be accomplished by adding two years to the state university. He suggested Kansas City as being the ideal location because of the abundance of clinical material which would be available.

Dr. Wm. Paul Maddux, Springfield, gave a splendid paper on "Acute Atypical Pulmonary Diseases."

George W. Newman, M. D., Secretary.

TENTH COUNCILOR DISTRICT

PAUL BALDWIN, KENNETT, COUNCILOR

St. Francois-Iron-Madison-Washington-Reynolds Counties Medical Society

The St. Francois-Iron-Madison-Washington-Reynolds Counties Medical Society met at the Bonne Terre Hospital, Bonne Terre, March 30, at 8:00 p. m. with the following present: Drs. David E. Smith, A. L. Evans, and Ferdinand Welebir, Bonne Terre; H. C. Gaebe, Desloge; Dailey Appleberry, Rivermines; H. H. Cline, Flat River; Reuben Appleberry, Farmington; Harry Barron, Fredericktown; B. M. Bull, Ironton; W. E. Aubuchon and John W. Hunt, Jr., Leadwood; J. P. Yeargain, Irondale; Harry Poston, Bonne Terre, and Capt. Van W. Taylor.

Mr. Virgil W. Heggemeier, St. Louis, of John Wyeth and Brother, presented a color motion picture with sound on "Peptic Ulcer," prepared under the direction of Dr. Everett D. Kiefer, The Lahey Clinic.

Dr. Harry Poston, Bonne Terre, was accepted to membership by transfer from the Los Angeles County Medical Society.

Meeting of April 14

The Society met at the Bonne Terre Hospital, Bonne Terre, April 14, at 8:00 p. m. with the following present: Drs. David E. Smith, Ferdinand Welebir and Harry Poston, Bonne Terre; W. E. Aubuchon and John W. Hunt, Jr., Leadwood; Reuben Appleberry, Farmington; Harry Barron and S. C. Slaughter, Fredericktown; H. C. Gaebe, Desloge; J. P. Yeargain, Irondale; Percy S. Pelouze, Philadelphia; R. R. Wolcott, Jefferson City.

Dr. Pelouze addressed the Society on "Gonorrhea in Regard to the Problems of Treatment of the Sulfa Resistant Cases in General Practice."

Miss Annabelle Murphy, R. N., discussed the nurse shortage in this area, particularly in regard to the problem of operating the Bonne Terre Hospital.

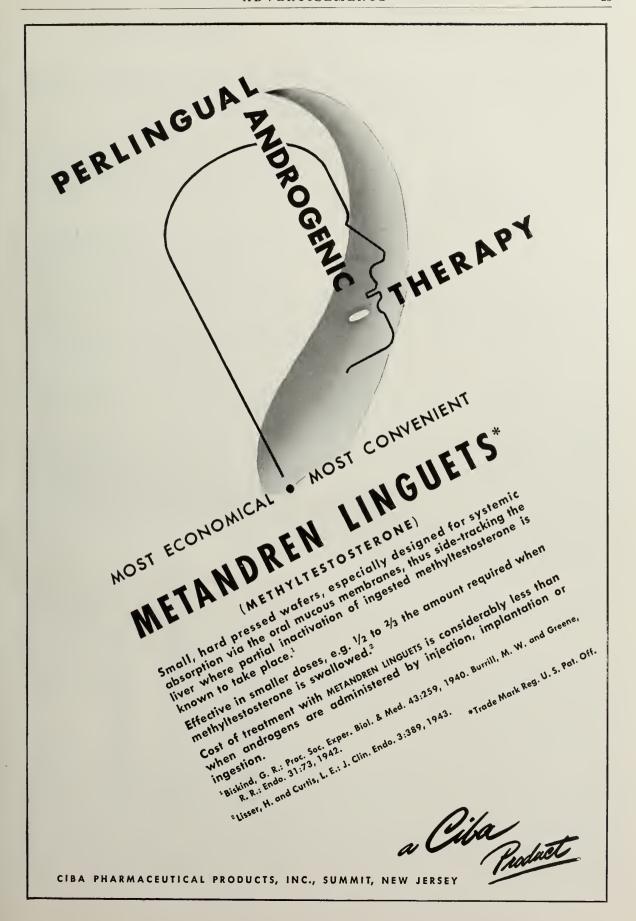
The following officers for the year were elected: President, Dr. Reuben Appleberry, Farmington; vice president, Dr. Harry Barron, Fredericktown; secretary, Dr. John W. Hunt, Jr., Leadwood.

Meeting of May 24

The Society met at the Bonne Terre Hospital, Bonne Terre, May 24, with the following present: Drs. S. A. Lanzafame, Reuben Appleberry and Frank J. Nickols, Farmington; J. P. Yeargain, Irondale; Arnold Traubitz, W. E. Aubuchon and John W. Hunt, Jr., Leadwood; Ferdinand Welebir and A. L. Evans, Bonne Terre; Harry Barron and M. B. Barber, Fredericktown; David Basham, Farmington.

Dr. Ferdinand Welebir, delegate for St. Francois County, and Dr. Harry Barron, delegate for Madison County, gave interesting reports on the annual session.

JOHN W. HUNT, JR., M.D., Secretary.



INDEX TO ADVERTISERS

BOOKS RECEIVED

Abbott Laboratories
Bernheim Distilling Company43Borden Company9Burroughs Wellcome & Company6
Camel Cigarettes7Camp, S. H. & Company19Canada Dry Ginger Ale, Inc.31Cheplin Laboratories, Inc.40Ciba Pharmaceutical Products, Inc.23Ciba Pharmaceutical Products, Inc.InsertCommercial Solvents Corporation26, 27Cook County Graduate School of Medicine32
Faith Hospital
Glenwood Sanatorium
Hamilton-Schmidt Surgical Company20Hanger, J. E., Inc.36Holland-Rantos Company8
Isle, W. E., Company
Lederle Laboratories, Inc.17Lilly, Eli and Company16Lov-E Brassiere Company42
M & R Dietetic Laboratories, Inc.38Major Clinic Association5Mead Johnson & Company44Medical Protective Company34Milwaukee Sanitarium1Miscellaneous Announcements35Mosby, C. V., Company33Mullen Ambulance Company22
National Association of Margarine Manufacturers37National Pathological Laboratory32Neurological Hospital, The28Norbury Sanatorium32
Parke, Davis & Company4Philip Morris & Company25Producers Creamery Company31
Ralph Sanitarium
Schenley Laboratories, Inc.35Schmid, Julius, Inc.14Searle, G. D., Company13Smith, Kline & French Laboratories30, 41Squibb, E. R., and Sons29Stearns, Frederick & Company3Stokes Sanitarium36
Tampax, Inc
Wallace Sanitarium36Wander Company, The12White Laboratories, Inc.15Winthrop Chemical Company11Worrell, Dorothy36Wyeth, Inc.2
Young, F. E., & Company
Zemmer Company 22

SMALL COMMUNITY HOSPITALS. Henry J. Southmayd, Director, Division of Rural Hospitals, The Commonwealth Fund. Geddes Smith, Associate, The Commonwealth Fund. New York: The Commonwealth Fund. 1944. Price \$2.00.

Manual of Physical Therapy. By Richard Kovacs, M.D., Professor of Physical Therapy, New York Polyclinic Medical School and Hospital; Third Edition, Thoroughly Revised. Formerly Published Under The Title, "Physical Therapy for Nurses." Illustrated With 118 Engravings. Philadelphia: Lea & Febiger. 1944. Price §3.25.

ALLERGY IN PRACTICE. By Samuel M. Feinberg, M.D. Associate Professor of Medicine and Chief of the Division of Allergy, Northwestern University Medical School; President, American Association for the Study of Allergy, 1942-1943. With the Collaboration of Oren C. Durham, Chief Botanist, Abbott Laboratories. Chicago: The Year Book Publishers. 1944. Price \$8.00.

Fundamentals of Psychiatry. By Edward A. Strecker, M.D., Sc.D., F.A.C.P. Professor of Psychiatry and Chairman of the Department, Undergraduate School of Medicine, University of Pennsylvania; Consultant to the Bureau of Medicine and Surgery, United States Navy; Consultant to the Secretary of War, A.A.F. Second Edition. 15 Illustrations. Philadelphia: J. B. Lippincott Company. 1944. Price \$3.00.

Textbook of General Surgery. By Warren H. Cole, M.D., F.A.C.S., Professor and Head of the Department of Surgery, University of Illinois College of Medicine; Director of Surgical Service, Illinois Research and Educational Hospitals, Chicago; and Robert Elman, M.D., Associate Professor of Clinical Surgery, Washington University School of Medicine; Assistant Surgeon, Barnes Hospital; Associate Surgeon, St. Louis Children's Hospital; Director of Surgical Service, H. G. Phillips Hospital, St. Louis. Fourth Edition. New York: D. Appleton-Century Co. 1944. Price \$10.00.

Medical Diagnosis. Applied Physical Diagnosis. Edited by Roscoe L. Pullen, A.B., M.D. Instructor in Medicine, Tulane University of Louisiana School of Medicine; Formerly Fellow in Clinical Endocrinology, Duke University School of Medicine and Duke Hospital, Durham, North Carolina. With a Foreword by John H. Musser, B.S., M.D., F.A.C.P., Professor of Medicine, Tulane University of Louisiana School of Medicine; Senior Visiting Physician, Charity Hospital of Louisiana at New Orleans. With 584 Illustrations and 12 Colored Plates. Philadelphia: W. B. Saunders Co. 1944. Price \$10.00.

Functional Disorders of the Foot. Their Diagnosis and Treatment. By Frank D. Dickson, M.D., F.A.C.S. Associate Professor of Clinical Surgery, Medical School, University of Kansas; Orthopedic Surgeon, St. Luke's, Kansas City General, and Wheatley Hospitals, Kansas City, Missouri; Providence Hospital, Kansas City, Kansas; and Rex L. Diveley, A.B., M.D., F.A.C.S. Colonel, Medical Corps, Army of the United States; Orthopedic Consultant, European Theater of Operations; Orthopedic Surgeon, St. Luke's Kansas City General, Research, and Wheatley Hospitals, Kansas City, Missouri; Providence Hospital, Kansas City, Kansas. 202 Illustrations. Second Edition. Philadelphia: J. B. Lippincott Co. 1944. Price \$5.00.

THE JOURNAL

OF THE

Missouri State Medical Association

The Official Organ of the State Association and Affiliated County Societies
Issued Monthly under direction of the Publication Committee

COPYRIGHTED, 1944, BY MISSOURI STATE MEDICAL ASSOCIATION. ALL RIGHTS RESERVED.

VOLUME 41

SEPTEMBER, 1944

Number 9

RALPH L. THOMPSON, M.D., Editor HELEN PENN, Assistant Editor 623 Missouri Bldg., St. Louis, Mo. Telephone, Newstead 0404-05

Publication Committee RALPH L. THOMPSON, M.D., Chairman W. A. BLOOM, M.D. ROBERT MUELLER, M.D. J. WILLIAM THOMPSON, M.D.

VENEREAL DISEASE CONTROL IN MISSOURI

R. R. WOLCOTT, M.D.

JEFFERSON CITY, MO.

The purpose of this report is to review some of the major aspects of the state venereal disease program of the last year and to project plans for the future operation of the program.

VENEREAL DISEASE INVENTORY

The trend of reported incidence of the two principal venereal diseases during the last three years is shown graphically in figure 1. The morbidity reports shown include all reports made by private physicians, clinics and the medical corps of installations of the Armed Forces located within the state.

Figures for the first six months of 1944 represent an increase over those for the same period of 1943 and would suggest a 1944 incidence approximately midway between the 1942 and 1943 totals.

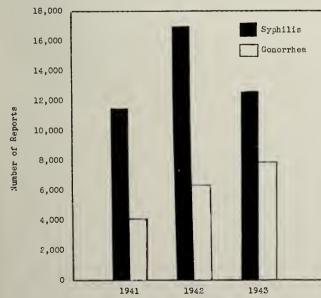


Fig. 1. Venereal Disease morbidity reporting in Missouri.

Surgeon, U. S. Public Health Service, Venereal Disease Control Officer, State Board of Health.

Contact reports from the Armed Forces which supply pertinent information concerning civilians named as contacts of known cases of venereal disease have furnished a useful guide to suggest which areas of the state might harbor the greatest amount of infectious venereal disease. The syphilis and gonorrhea monthly totals are shown for the last eighteen months in figure 2.

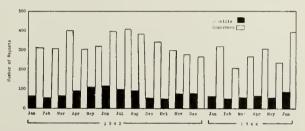


Fig. 2. Missouri venereal disease contact reports from the α

Additional study of the contact reports for the period from January 1, 1943, through June 30, 1944, reveals the following interesting data:

- 1. The gonorrhea-syphilis ratio is 4.2 to 1.
- 2. Contact reports pertaining to Negroes represent 44 per cent of the total.
- 3. Contact reports naming the City of St. Louis as the place of meeting or exposure represent 45 per cent of the state total.

TREATMENT FACILITIES

In addition to the offices of private physicians the following treatment facilities are available in Missouri:

- 1. Clinics conducted by full time health officers, 30.
- 2. Clinics conducted by part time physicians, 26.
- 3. Clinics conducted in hospitals and institutions, 18.
- 4. Midwestern Medical Center of St. Louis. This rapid treatment center which opened in October 1943 replaces the much smaller facility at Monett. It is operated by the U. S. Public Health Service in cooperation with the State Board of Health. It has a rated capacity of 300 beds. The primary purpose of the Center is the treatment of infectious venereal

diseases. A small number of cases of asymptomatic neurosyphilis are also accepted.

Penicillin therapy has been made available at the Center for chemoresistant gonorrhea and, more recently, for dark field positive syphilitic infections.

That the Midwestern Medical Center has filled a definite need is indicated by an average census in excess of 200 patients for several months and a record of more than 1,500 patients treated since October 1943. Approximately 70 per cent of the patients are treated for gonococcic infections.

Physicians desiring to refer patients to the Midwestern Medical Center may make the necessary arrangements through their local health department or directly with Dr. L. J. Hanchett, Medical Officer in Charge of the Center, located at 3630 Marine Avenue, St. Louis.

DRUG DISTRIBUTION

The State Board of Health continues its policy of free distribution of venereal disease drugs for reported cases. The following summary of amounts distributed during the first half of 1943 and 1944 shows an increasing use of drugs by private physicians:

Table 1. Drug Distribution

Private Pr	ractitioners	Clinics, Ho	spitals, Etc.
1943	1944	1943	1944
11,310 c.c.	24,420 c.c.	36,100 c.c.	11,460 c.c.
75.6 gm.	489.6 gm.	793.8 gm.	285.6 gm.
2,549 gm.	4,872.0 gm.	6,372 gm.	2,310.0 gm.
240 gm.	12,760 gm.	21,860 gm.	580 gm.
	1943 11,310 c.c. 75.6 gm. 2,549 gm.	1943 1944 11,310 c.c. 24,420 c.c. 75.6 gm. 489.6 gm. 2,549 gm. 4,872.0 gm.	11,310 c.c. 24,420 c.c. 36,100 c.c. 75.6 gm. 489.6 gm. 793.8 gm. 2,549 gm. 4,872.0 gm. 6,372 gm.

LABORATORY STUDY

In the summer of 1943 cervical secretion specimens from 350 girls and women of the prostitute-promiscuous class were collected through the cooperation of the St. Louis Health Division. Seventy-five persons of the group had been named as contacts of known cases of gonorrhea.

All specimens were taken from the cervix in accordance with accepted standards of technic. The specimens were stained by Hucker's modification of the gram stain by Dr. S. E. Sulkin of the St. Louis Health Division and mounted with coverglasses.

In an attempt to show the possible agreement and disagreement among laboratory reports the 350 stained specimens were then examined by the microscopists of the following seven laboratories: Kansas City Health Department, St. Louis Health Division, St. Louis County Health Department, Missouri State Board of Health, Southeast Branch Laboratory, Southwest Branch Laboratory and Venereal Disease Research Laboratory, Stapleton, New York.

Figure 3 shows the degree of agreement reached by the participating laboratories. All examiners agreed that gonococci* were not found in 137 specimens, that gonococci* were found in 5 specimens;

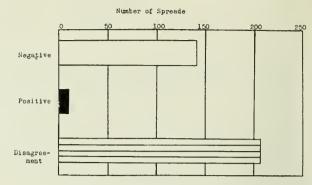


Fig. 3. Results of the examination of 350 stained cervical specimens by seven laboratories.

a variety of "negative," "positive" and "extracellular" reports were made on the remaining 208 specimens.

Individual positive laboratory reports varied from six to sixty-nine and similar variations occurred in the extracellular and negative categories.

SUMMARY AND PROJECTED PLANS

The State Board of Health does not contemplate any notable deviation from the present program in the near future.

The Midwestern Medical Center plays an important role in venereal disease control by affording institutionalization and rapid therapy for persons having early infectious disease.

Morbidity reports and epidemiologic information from the Armed Forces emphasize the importance of gonorrhea. Since the laboratory cannot be considered infallible in the smear diagnosis of gonorrhea in women the suggestion is made again that the physician's level of suspicion must be raised, that it may be unwise to withhold treatment because of negative laboratory findings provided that bona fide epidemiologic information and clinical evidence or either point to a gonococcic infection.

A PNEUMATIC LEG SPLINT

A pneumatic leg splint, quickly and easily applied, which is recommended only as an emergency and transportation unit, is described in *The Journal of the American Medical Association* for August 5 by G. J. Curry, M.D., Flint, Mich.

"This piece of fracture equipment," he says, "is designed to employ the use of air properly encased between two layers of supporting material. It is an inflation unit for emergency care of fractured lower extremities. The two layers are cut to selected measurements and sealed at the edges. The air intake is through a valve located at either the upper or the lower portion. . . . Hooks are attached to the anterior . . . edges and evenly spaced. The unit is folded around the affected part and laced with leather lacing material in the same fashion as a boot. Inflation follows, either by mouth blowing or by the use of a pump. . . ."

^{*}Gram negative intracellular diplococci resembling gonococci.

State Board of Health.

THE BARNARD FREE SKIN AND CANCER HOSPITAL RESEARCH

REPORT FOR 1943

E. V. COWDRY ST. LOUIS

The loss of Dr. Frederick J. Taussig, Chairman of the Executive Committee of the Medical Board, has been a severe blow. He had faith in what we were trying to do, listened to our difficulties with patience and rejoiced with us when we overcame obstacles. In view of his interest in cancer research and his optimism that the goal can be reached, his friends have established a Dr. Frederick J. Taussig Memorial Fund for research on cancer which at present amounts to \$11,698.00. More is pledged.

Papers published from the hospital in 1943 are listed at the end of this report. Their titles show that the spirit of research pervades the institution and that investigation is not carried on in any narrow way. The hospital from the beginning has been a center for research in dermatology. MacCardle and the Engmans have supplemented their spectrographic demonstration of local magnesium deficiency in the skin lesions of neurodermatitis with detailed studies of the distribution of minerals as revealed by micro-incineration. MacCardle, Baumberger and Herold have mobilized new methods on the problem of pemphigus. In particular, by polarographic studies, they have found that the proteins of the bullous fluid and of the serum of pemphigus patients behave in the same way as those of normal serum. They have observed a massive movement of silicon into the peripheral third of the dermal lesions and an increase in iron, manganese and selenium throughout the entire skin of persons suffering from pemphigus. But more facts must be discovered before the etiology of this strange and terrible disease will be revealed.

Morris Moore, Weiss, Cooper and Manting have made further studies on fungi, in which the use of the chorio-allantoic membranes of chick embryos by Moore to determine the virulence of different strains of phialophora verrucosa—the organism responsible for chromomycosis—deserves special mention. This is an extension into mycology of an ingenious technic.

A thorough understanding of the human skin demands detailed investigation of the age changes in it. The first paper of a series dedicated to this purpose has been published by Evans, Cowdry and Nielson on the basis of many biopsy specimens collected in the St. Louis Infirmary and Training School. In it have been described a slight thinning of the epidermis, a tendency to disappearance of the stratum granulosum and a marked decrease in the shrinkage of the dermis so that the epidermis is smoother. Much material has been collected for two other papers to be published after the war.

Some six years ago it was decided to launch a long term project in cancer. It was agreed that next in importance to curing cancer is discovering how the disease starts; in other words, finding out how normal cells change into malignant ones. So many attempts by leading investigators to reach this goal have been made in far better equipped and financed laboratories that for us to aim so high might seem futile. Yet, after careful consideration, it was thought that there might be at least a fighting chance of success if we could manage first to choose more favorable material for examination, and second to bring to bear upon it a great concentration of the best available technics over a longer period of time than in previous experiments. The principle is not unlike that underlying the direction of a military offensive against a very limited part of the line backed by greater force than hitherto used.

We chose: (1) Methylcholanthrene as the carcinogen because it can be obtained in pure state and is related to substances naturally occurring in the human body, notably the bile acids; (2) epidermis as the tissue because it is superficial, easily observable in vivo, composed of cells of a single type conveniently arranged in layers and avascular; (3) mice of closely inbred strain so that with standardized treatment with carcinogen stages in carcinogenesis will be as similar as possible in different groups of animals.

Having thus decided to study a process in which a single cell type in pure strain mice plus chemically pure carcinogen gives cancer fairly quickly with maximum uniformity it was concluded that observations should be limited to properties which can be measured quantitatively, the aim being to discover whether they increase, decrease or remain constant; when there is a change, the rate of change and whether or not it is parallel to alterations in other properties, in short, to integrate data and ultimately to construct a picture of the processes at work and their relation to one another.

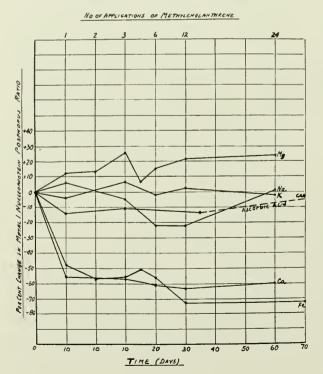
Each property studied is to some extent a problem in itself with the result that the papers by various members of the staff are units. This kind of organization is helpful because it promotes individual initiative, gives credit to those actually doing the work and makes it unnecessary to head the papers with a long string of names. The goal is kept constantly in mind, the pursuit of side issues is discouraged and the group operates as a team united by a common purpose and by experience meetings every two weeks. Expansion is simple. While the studies under way continue without interruption new lines of research can be added when we become convinced that a technic has been developed to the point that it will yield quantitative data. Thus far sixteen workers have participated at various times and over \$100,000 has been spent. A comprehensive report of results was made by Cowdry at the Bensley Celebration in Chicago.

During 1943 progress has been reported by Simpson and Cramer in efforts to relate more closely the carcinogen applied to the skin to the early epidermal reactions. This was accomplished by fluorescence microscopy. It was found that three minutes after application, the carcinogen is detectable

dissolved in the free lipids of the keratinized strata and deeply within the sebaceous glands by its blue violet fluorescence. In addition, a crust of undissolved methylcholanthrene limits the outer surface of the epidermis and is recognizable by its vellowish green fluorescence. The sebaceous glands then extrude their fluorescent contents on to the surface (from two to three days) and themselves degenerate (four days). Some of this material collects in the pits of the hair follicles. There is as yet no evidence that unchanged carcinogen is taken directly in by the previously normal epidermal cells. Investigation of fluorescence spectra, designed to reveal possible modifications in the carcinogen, has been interrupted by the war. All microscopically visible fluorescent carcinogen disappears in from six to ten days. The role of sebaceous glands in carcinogenesis may prove to be important.

Polarographic methods, satisfactory for the estimation of sodium and magnesium, were devised by Carruthers. Utilizing these and a technic for separating epidermis from dermis for analysis described in last year's report, Carruthers and Suntzeff have observed that in the stages of precancerous hyperplasia the magnesium slowly increases slightly and the sodium and potassium remain without significant change; while, as previously reported, the calcium and iron are decreased quickly at least 50 per cent. Consequently, the cells, or their descendants, live from ten to sixty days after the first application of carcinogen in the new kind of chemical equilibrium indicated in figure 1.

By a stroke of good fortune it was possible to



arrange for Dr. J. J. Biesele, International Cancer Research Foundation Fellow, to work with us for four months. Since he is a chromosome specialist he brought to the team experience in a line of investigation which we were eager to pursue. It was discovered, much to our surprise, that alterations in chromosomes occur as early as two days after a single application of the carcinogen, although, as already stated, the carcinogen cannot be detected by its fluorescence in these reacting cells.

The only change in the research staff has been the addition of Dr. Mary G. Ritchey as research assistant. Dr. Ritchey is playing an essential part in the major project by making determinations of water content during epidermal carcinogenesis. She also has started bioassays of members of the B complex of vitamins. Plans for 1944 also include further investigations on fluorescence and sebaceous glands, enzyme analyses of precancerous epidermis and extension of mineral analyses into the resulting cancers.

Surgery is an important aid in cancer treatment. Drs. Seelig and Verda have gone far toward removing the talcum powder hazard in surgery. They have introduced other powders to take the place of talcum, which, if they escape in the peritoneal or other cavities during operations, are innocuous and do not give rise to adhesions and granulomata. This is a great stride in advance which will be felt in operating rooms the world over.

On the invitation of the W. B. Saunders Co., of Philadelphia, Dr. Seelig is acting as editor in the preparation of a volume in the series of "Surgical Clinics of North America" to be devoted entirely to papers on various aspects of cancer written by members of the staff as a service to physicians and surgeons in practice. There are twenty-five chapters dealing with the factors that produce cancer, special points to be borne in mind on reaching a diagnosis, the choice of treatment both radiologic and surgical, and the prognosis as shown by the follow-up of many cases.

Cooperation with the C. F. Kettering Foundation for the Study of Chlorophyll and Photosynthesis at Antioch through several years is beginning to bear fruit in the publication of joint papers like that of Stowell and Albers on the spectrophotometric analysis of tissue staining. Spectrographic investigations at Antioch on our materials has been interrupted because the physicists of the Foundation are now on government duty but an abundant supply of methylcholanthrene is being made for us under the direction of Dr. P. Rothemund. Last spring Dr. Charles F. Kettering, vice president of the General Motors Corporation and head of the General Motors Research Laboratory, came to St. Louis primarily to see the work on cancer being done at Barnard. His interest was inspiring and his suggestions based on his own scientific background and inventive genius were helpful because the success of our studies on carcinogenesis depends so much on the utilization of physical and chemical technics.

Dr. M. W. S. Schram, secretary of the International Cancer Research Foundation of Philadelphia, was another welcome visitor. Her constructive interest was not limited to the chemical studies on carcinogenesis by Dr. Carruthers which are largely supported by the foundation but embraced our entire program of research on cancer.

The U.S. Public Health Service has continued to cooperate with the Barnard Hospital despite the war. The Service contributes financially to the support of the major research project and sends to the hospital, at its expense, selected individuals for special clinical training in cancer; also the Hospital gladly provides quarters for an officer of the Public Health Service (Miss B. Brady) who is making a systematic investigation of the histories of cancer patients. Every year members of the staff of the National Cancer Institute of the U.S. Public Health Service visit Barnard Hospital and staff members of the hospital visit the Institute. During 1943 we were glad to receive Dr. M. J. Shear, principal biochemist of the Institute, who spent several days in St. Louis planning the details of a cooperative research project. Our study of carcinogenesis produced by the chemical substance, methylcholanthrene, supplements investigations in the Institute by Blum and others on carcinogenesis, also of mouse epidermis caused by a physical agent, ultraviolet light. It is fortunate for us that the carcinogenic action of methylcholanthrene is being studied so systematically in the Institute because the results obtained, particularly by Spencer and Earle with lowly organisms and tissue cultures, help us to interpret our findings.

An important question has arisen in consequence of preliminary examination of residue oils produced in the manufacture of high octane gasoline brought to the Hospital for testing by Dr. W. F. Ross of the Shell Oil Company at Wood River, Illinois. The reason for entertaining the possibility that these oils may be more carcinogenic than other oils previously sold to the public is that the method of preparation is so drastic that it is likely to produce a high concentration of polycyclic aromatic hydrocarbons of the general group known to be capable of causing cancer. We are advised that there is no essential difference in the catalytic cracking process now extensively employed so that the tests would have wide application to such residue oils from many refineries. Dr. Simpson has observed that preliminary fluorescence spectra of the samples show bands highly suggestive of the presence of carcinogens. It is our opinion that actual carcinogenicity should be measured by animal experimentation.

Research in the Barnard Hospital is integrated not only by the experience meetings of the full time staff referred to, and by afternoon clinical meetings every two weeks, but also by larger evening research conferences held on the last Monday of each month beginning at 8:00 p. m., to which all members of the profession in St. Louis are cordially invited and after which refreshments are served. The speakers are usually members of the staff of the Hospital and of Washington University but last year we were privileged to hear from two out-oftown guests of the Hospital. Dr. Alfred Taylor, of the University of Texas, described "The Transmission of Mammalian Cancer by Cell-Free Filtrates," and Dr. C. Huggins, of the University of Chicago, spoke on "Castration and Prostatic Carcinoma."

The annual Barnard Hospital lecture was delivered in the auditorium of the St. Louis Medical Society by Dr. C. C. Little, director of the Roscoe B. Jackson Memorial Laboratory at Bar Harbor. His subject was "Parental Influence in the Development of Cancer." To have the role of heredity presented by an expert was of great value to the large and appreciative audience. Dr. Little also made a stirring address at the exercises held in the Sheldon Memorial in honor of Dr. Taussig. It is the intention of the Hospital in these Barnard lectures to bring to medical men and women in the city the most up-to-date information possible on aspects of cancer considered by the Executive Committee of the Medical Board to be most timely. In earlier lectures the possibility of virus etiology of cancer, the influence of hormones, the chances of effective treatment by new means and other problems have been discussed. By publishing these accounts in The Journal of the American Medical Association the Barnard Hospital helps, throughout the United States, to substitute fact for fancy concerning cancer.

Barnard Free Skin and Cancer Hospital.

BIBLIOGRAPHY PUBLICATIONS IN 1943

1. Baumberger, J. P., and Bardwell, K.: Electrode Half-Cell Polarography, Indust. & Engin. Chem. 15:639-641.
2. Beamer, P. R., and Stowell, R. E.: Use of Tertiary Butyl Alcohol in Bacteriologic Staining Procedures, J. Lab. & Clin. Med. 28:1599-1602.

3. Carruthers, C.: Microdetermination of Magnesii the Polarograph, Indust. & Engin. Chem. 15:412-414 Microdetermination of Magnesium With

the Polarograph, Indust. & Engin. Chem. 15:412-414.
4. Carruthers, C.: Oxidation-Reduction Potential, Cowdry's Microscopic Technique, pp. 147-149.
5. Carruthers, C.: Ultramicromethod for Sodium Employing the Polarograph, Indust. & Engin. Chem. 15:70-71.
6. Carruthers, C., and Suntzeff, V.: Chemical Studies on the Mode of Action of Methylcholanthrene on Mouse Epidermia, Cancer Research 3:744-748.
7. Cooper, Z. K.: The Challenge of the Cancer Problem, Bull. Am. Soc. Control Cancer, December, 1943.
8. Cowdry, E. V.: Barnard Free Skin and Cancer Hospital Research Report for 1942, J. Missouri M. A. 40:205-208.
9. Cowdry, E. V.: Experimental Methylcholanthrene Carcinogenesis in Mice. Frontiers in Cytochemistry (N. L. Hoerr, Editor), Biological Symposia 10:131-162.
10. Cowdry, E. V.: Factors in Ageing, Scient. Monthly 56:370-374.

56:370-374.

56:370-374.

11. Cowdry, E. V.: Microscopic Technique in Biology and Medicine, Baltimore, Williams & Wilkins, 206 pp.
12. Cramer, W., and Stowell, R. E.: On the Quantitative Evaluation of Experimental Skin Carcinogenesis by Methyl-cholanthrene. The Factors of Dosage, Time, Spacing of Applications, and the Multiplicity of the Carcinogenic Response, Cancer Research 3:668-681.
13. Cramer, W., and Stowell, R. E.: Skin Carcinogenesis by a Single Application of 20 Methylcholanthrene, Cancer Research 3:36-42.
14. Evans, R.: Cowdry, E. V., and Nielson, P. E.: Ageing of

Research 3:36-42.

14. Evans, R.; Cowdry, E. V., and Nielson, P. E.: Ageing of Human Skin, Anat. Rec. 86:545-565.

15. MacCardle, R. C.; Baumberger, J. P., and Herold, W. C.: CI. Histochemistry of Pemphigus Lesions, Arch. Dermat. & Syph. 47:517-545.

16. MacCardle, R. C.; Engman, M. F., Jr., and Engman, M. F., Sr.; XCIV Mineral Changes in Neurodermatitis Revealed by Microincineration, Arch. Dermat. & Syph. 47:335-32.

17. Moore, M.: Fungi, Cowdry's Microscopic Technique, pp. 81-83.

18. Moore, M.: The Virulence of Strains of Phialophora Verrucosa Determined by Inoculating Chorio-allantoic Membranes of Chick Embryos, J. Invest. Dermat. 5:411-422.

19. Moore, M.; Cooper, Z. K., and Weiss, R. S.; Chromomycosis (Chromoblastomycosis), J. A. M. A. 122:1237-1243.
20. Moore, M., and Manting, G.; Sporotrichosis Following a Mosquito Bite. Description of Lesions in a Girl of Indian and French Descent, Arch. Dermat. & Syph. 48:525-526.
21. Seelig, M. G.; Verda, D. J., and Kidd, F. H.; The Talcum Powder Problem in Surgery and Its Solution, J. A. M. A. 123:950-954.

22. Simpson, W. L.: Electron Microscopy, Cowdry's Micro-

22. Simpson, W. L.: Electron Microscopy, Cowdry's Microscopic Technique, pp. 65-66.
23. Simpson, W. L.: Fluorescence Microscopy, Cowdry's Microscopic Technique, pp. 76-78.
24. Simpson, W. L.: Radioactive Isotopes as Tracer Substances, Cowdry's Microscopic Technique, pp. 165-170.
25. Simpson, W. L., and Cramer, W.: Flourescence Studies of Carcinogens in Skin. L. Histological Localization of 20-Methylcholanthrene in Mouse Skin After a Single Application, Cancer Research 3:362-369.
26. Simpson, W. L., and Cramer, W.: Further Observations on Skin Carcinogenesis by a Single Application of 20-Methylcholanthrene, Cancer Research 3:604-605.
27. Simpson, W. L., and Cramer, W.: Sebaceous Glands and Experimental Skin Carcinogenesis in Mice, Cancer Research 3:515-518.

Experimental Skill Carchings: 3:515-518.
28. Stowell, R. E., and Albers, V. M.: A Spectrophotometric Analysis of Tissue Staining, Stain Technol. 18:57-71.
29. Suntzeff, V., and Carruthers, C.: The Effect of Methylcholanthrene Upon Epidermal Sodium and Calcium, Cancer

cholanthrene Upon Epidermal Sodium and Calcium, Cancer Research 3:431-433.

30. Urban, F.; Milder, B., and-Carruthers, C.: Microdetermination of Vitamin A and Carotenes, Biochem. J. 37:295-298.

31. Weiss, R. S.; Conrad. A. H., and Conrad. A. H., Jr.: Sesame Oil Tumors, J. A. M. A. 121:237-239.

32. Wicks, L. F.: Hydrogen Ion Indicators, Cowdry's Microscopic Technique, pp. 95-97.

33. Wicks, L. F., and Suntzeff, V.: Glyoxal, a Non-irritating Aldehyde Suggested as Substitute for Formalin in Histological Fixations, Science 98:204.

As far as the supply permits reprints will be sent free on

As far as the supply permits reprints will be sent free on request made to Dr. E. V. Cowdry.

CASE REPORTS OF BARNES HOSPITAL

CLINICAL AND POSTMORTEM RECORDS USED IN WEEKLY CLINICOPATHOLOGIC CONFERENCES AT BARNES HOSPITAL, ST. LOUIS

W. BARRY WOOD, JR., M. D., and ROBERT A. MOORE, M. D., Editors

CASE 51

PRESENTATION OF CASE

The patient was a 66 year old, single, Negro "coal hauler" who was admitted to the hospital on June 6 and died on June 23, 1944.

Chief Complaint.—Difficulty in breathing. Family History.—Noncontributory.

Past History.—General health had always been good. He had had measles, mumps and smallpox in childhood. Since 1924 he had had an inguinal hernia which occasionally caused him abdominal discomfort. He had had a fractured right internal malleolus in 1928. There was no previous history of cough, dyspnea, chest pain or hoarseness. He had been bothered by chronic constipation for many years. He remembered a penile lesion in boyhood, but denied gonorrhea. He had never been told that he had syphilis, and had never received any antisyphilitic treatment.

Personal History.—Patient had always lived in St. Louis where he had worked as a coal hauler. He drank heavily in his youth but stated that he stopped drinking in 1927.

Present Illness.—Two years before admission to the hospital, the patient began to notice moderate dyspnea on exertion. At the same time he began gradually to lose weight. The dyspnea increased and five weeks before admission to the hospital it had become extremely severe. At this time he began to cough, raising only clear whitish sputum, and on occasion he noticed sharp pains in the lower portion of both sides of his chest. The dyspnea was made no worse when the patient lay down but he noticed moderate dysphagia and ate very little. One month before admission he entered the Homer Phillips Hospital where he remained for two weeks. At the end of this time he was discharged and told that he had an enlarged heart. The dyspnea was not relieved and became so severe that he could not sleep at night. Two or three days before admission his throat became sore, apparently due to the continual coughing. During the few days before admission to the hospital, he noticed profuse

Physical Examination.—Temperature was 38.6 C., pulse 120, respiration 30, blood pressure 145/82 (same in both arms). The patient was a well developed, moderately well nourished Negro man who was in very marked respiratory distress. There was noticeable stridor in both inspiration and expiration and noticeable retraction of the intercostal spaces each time the patient inspired. He coughed frequently, raising thin clear sputum. The cough had a brassy quality. The patient appeared to be moderately cyanotic and was sweating profusely. The dyspnea was not noticeably affected by change of position. The pupils reacted normally to light and accommodation. The nasal septum was intact. Most of the teeth had been removed, only a few carious snags remaining. Examination of the throat was not remarkable. The trachea was in the midline and there was no tracheal tug. No distension of neck veins was noticed. Examination of the chest showed it normal except for loud rhonchi heard throughout both lung fields. The heart was not enlarged, the pulse was somewhat increased, but the rhythm was regular. A soft systolic murmur was heard at the cardiac apex and the second aortic sound seemed to be slightly accentuated. Its quality was described as normal and no diastolic murmur was heard. The peripheral arteries were described as thickened and tortuous. The abdomen was normal except for a large, reduceable right inguinal hernia. Rectal examination revealed only external hemorrhoids. Neurologic examination was normal.

Laboratory Data.—Red blood count was 4.02 million; hemoglobin 12 gms., white blood count 10,900. Differential count: stab forms 8 per cent, segmented neutrophils 60 per cent, lymphocytes 28 per cent, monocytes 4 per cent. Urinalysis: specific gravity 1.012, pH 5.0, albumin trace, sugar negative, microscopic examination, two to three red blood cells and three to four white blood cells per high powered field. Stool examination was not recorded. Blood Kahn reaction was negative on two occasions. Venous pressure of right arm was 106 mm. of water, left arm 95 mm. of water, right leg 95 mm. of water. Circulation time with ether was 16 seconds, with decholin 25 seconds.

Fluoroscopic Examination.—"Diaphragms moved well, right slightly higher than left. Costophrenic angles clear. Apices flash on coughing. Lung parenchyma clear. Heart not enlarged. Mediastinum very greatly widened by mass which did not seem to pulsate. Left anterior view suggests that mass is due to enlargement of descending aorta."

Roentgen Ray Examination of Chest.—"The lung markings are not notable. Along the mediastinal shadow on the left, and well lateral to the parasternal line, there is a zone of great density extending from the anterior end of the first rib to the middle of the left ventricular border."

Electrocardiogram.—"Myocardial damage, possibly of coronary type. Left axis deviation."

Course in Hospital.—Shortly after admission to the hospital the patient's larynx was visualized by indirect laryngoscopy. Both vocal cords moved normally, and no obstruction could be seen in the airway down to the level of the second tracheal cartilage. "A small innocent appearing raised area" was noted on the left arytenoid cartilage. During the first few days in the hospital the patient seemed to improve, respiration became easier and the temperature gradually fell to normal. Because of the prolonged circulation time, the patient was slowly digitalized. Severe paroxysms of cough recurred at intervals and these were followed by periods of marked dyspnea which were relieved very little by oxygen, aminophyllin or adrenalin. On the tenth hospital day, laryngoscopy was repeated, and there was noted paralysis of the left vocal cord. Respiration then gradually became more difficult and further roentgen ray studies such as laminography and lipiodol examinations could not be done because of respiratory distress. On the thirteenth hospital day, the temperature rose to 39.6 C., and the white count was found to be 17,000. Chest signs were unchanged and the patient was started on sulfadiazine therapy. The sulfadiazine was given subcutaneously in one sixth molar sodium acetate, and a blood level varying between 11.6 mg. per cent and 22.7 mg. per cent was maintained until the patient's death. In spite of chemotherapy the fever persisted except for one brief remission, and the white count rose to 22,600. The patient at times was irrational, and on the eighteenth day respirations became irregular with long periods of apnea, the temperature rose to 40.5 and the patient finally died. The blood nonprotein nitrogen level at the time of death was 95 mg. per cent.

CLINICAL DISCUSSION

DR. W. BARRY WOOD: This patient died from a respiratory disease and had marked dyspnea during his entire stay in the hospital. The diagnosis will center around the cause of this dyspnea. Dr. Massie, when one sees a patient with severe dyspnea, what possibilities come to one's mind as to the cause of this condition?

Dr. Edward Massie: As I am a cardiologist, I would consider a cardiac cause for the dyspnea, but this does not seem likely.

Dr. Wood: On what basis do you make that statement?

Dr. Massie: There was noticeable strider on both inspiration and expiration, and noticeable retraction of the intercostal spaces each time the patient inspired. The cough had a brassy quality, and these findings are not common in cardiac failure or cardiac dyspnea. In addition, there is no definite evidence that this patient had cardiac failure in the first place.

Dr. Wood: The one sign of cardiac failure was a prolonged circulation time. Other tests indicate that the circulation was normal. What about the influence

of change of position on the dyspnea?

Dr. Massie: One certainly expects patients suffering from cardiac failure to be more at ease when sitting upright. This patient had no relief no matter what his position. This patient could not sleep at night which is common in cardiac failure.

Dr. Wood: You would rule out dyspnea due to car-

diac failure? What is your opinion, Dr. Goldman?
DR. Alfred GOLDMAN: I would think of some pulmonary lesion.

Dr. Wood: What conditions would be included in

pulmonary dyspnea?

Dr. Goldman: In an intrinsic lesion of the lung such diseases as asthma and emphysema would be consid-

Dr. Wood: Dr. Goldman, would you say that this was pulmonary dyspnea?

Dr. GOLDMAN: I would rule it out.

Dr. Wood: On what basis?

Dr. Goldman: From the physical signs, the history and the radiograph.

Dr. Wood: Dr. Walsh, would you rule out a lesion of the lung or pleura?

Dr. Theodore Walsh: I think we should consider an obstruction of the trachea, possibly from a lesion in the mediastinum or from a tumor in the trachea itself.

Dr. Wood: What are the characteristics of obstructive dyspnea? How can one recognize such a condition?

Dr. Walsh: One could recognize it in a patient who has as much trouble breathing in as in breathing out; also difficulty in breathing on exertion. A point against his difficulty in respiration being caused by bilateral abductor paralysis is the fact that this man was hoarse and did not speak above a whisper. In bilateral abductor paralysis the voice is usually almost normal.

Dr. Wood: The patient had obstructive dyspnea. What about the changes that he had on expiration and

inspiration?

DR. WALSH: He had a noticeable retraction, which would indicate obstruction.

DR. WOOD: Can you give any more information as to the possible location of this obstruction? Could it be some mechanical obstruction to the respiratory tract?

Dr. Walsh: The obstruction would be located somewhere above the bifurcation of the trachea, probably on the left side. It must involve the trachea below the larynx. As far as I can place it, the lesion would have to be on the left side somewhere along the course of the recurrent laryngeal nerve.

DR. WOOD: It is on the left side then. In this region of the mediastinum there are a great many structures: the trachea, the superior vena cava, the esophagus, the major arteries and the anterior chest wall. The obstruction in this case is somewhere in that region according

to your reasoning?

DR. WALSH: Yes, that is correct.
DR. WOOD: What would be the cause of the obstruction in that region, Dr. Sale? You saw the patient. What was the first thought that came to your mind as you examined him?

Dr. LLEWELLYN SALE: I thought that he had an aneurysm of the aorta.

Dr. Wood: That could easily obstruct the trachea. What type of aneurysm?

Dr. Sale: I had in mind a syphilitic aneurysm.

Dr. Wood: Would any other aneurysm be possible?
Dr. Sale: I did not think so. This man's Kahn test was negative, but he still could have a syphilitic aneurysm.

Dr. Wood: Are there other possibilities besides an

aneurysm?

DR. SALE: One might consider a mediastinal tumor. DR. Wood: What various sources of such a tumor might be considered?

Dr. Sale: Fatty tumors of the mediastinum and tumors of lymphoid tissue. Teratoma would have to be thought of. I do not think this is a common location for neurofibroma, but they do occur.

DR. Wood: Would carcinoma of any structure of the

mediastinum do this?

Dr. Sale: Carcinoma of the lymph nodes might cause such an obstruction.

Dr. Wood: From a primary tumor in the lung?

Dr. Sale: Yes.

Dr. Wood: Should we consider carcinoma of the esophagus?

DR. GOLDMAN: This man had dysphagia. This is not too important, but one would have to include it.

Dr. Wood: Are there other suggestions?

Dr. William Olmsted: An abscess would cause an obstruction.

Dr. Wood: Yes, an abscess of the mediastinum would cause such a condition.

Dr. Sale: A tumor of the pericardium should be considered.

DR. Wood: Most of the conditions that have been mentioned are rare except aneurysm of the aorta. Are there further suggestions?

Dr. Robert Moore: One more diagnosis submitted by some of the students is tuberculosis involving the mediastinal lymph nodes.

Dr. Wood: Dr. Smith, what is your opinion concerning the diagnosis of syphilitic aneurysm of the aorta?

Dr. John Smith: According to the evidence, that is not a tenable diagnosis. The aorta in the anterior posterior chest view does not present striking findings. In the oblique view it seemed to me that I can see the edge of the aorta in the middle of the vertebral column. An aneurysm would not usually occur around the trachea or cause a tracheal stenosis. The paralysis of the left cord is common in aneurysm of the aorta. Although this patient had a penile lesion in youth, there are many causes for such lesions other than syphilis.

DR. Wood: It is important to bring out here that a penile lesion does not always indicate syphilis.

Dr. Smith: This patient did not have a positive Kahn test.

DR. WOOD: This is an important point. How often do you find a negative Kahn in a patient with a syphilitic aneurysm?

DR. SMITH: It is not common unless the patient may have had treatment and the Kahn became negative and remained negative after treatment. I think that in

our clinic 25 per cent of patients have negative Kahn reactions.

DR. Wood: It may go as low as 10 per cent in cardiovascular syphilis. What form will give most posi-

tive reactions?

Dr. Sмітн: Aneurysms and marked aortic regurgitation

DR. Wood: The fact that it is negative in this patient is important. What other points are there against this being an aneurysm?

Dr. Smith: There is frequenly aortic regurgitation when an aneurysm exists.

Dr. Woop: The evidence that Dr. Smith has given is against the diagnosis of syphilitic aneurysm. Do you agree with him, Dr. Sale?

Dr. Sale: I would agree, but that was our diagnosis. The penile lesion, while it must not be considered as evidence of syphilis was taken into consideration. We were not concerned with the report of the fluroscopic

examination. The radiograms do give much reason to assume that it is not an aneurysm of the aorta.

DR. Wood: Will a dissecting aneurysm obstruct the trachea?

Dr. Sale: I do not know of a dissecting aneurysm in which obstructive dyspnea was a feature of the clinical picture.

DR. Wood: Let us now consider the possibility of some infection. Is there any evidence of infection in this case?

DR. GOLDMAN: The patient had a febrile course while in the hospital. That of course would favor infection, although it is doubtful that infection is the primary cause for the difficulty. One sees a high leukocyte count in active tuberculosis, but not in other types of the disease. All the evidence points to some form of secondary infection.

DR. Wood: Where would the infection occur?

DR. GOLDMAN: The infection would have to be in the mediastinum. The structure involved would be the superior vena cava producing the obstruction. Thrombosis of the superior vena cava might occur.

Dr. Wood: What about the possibility of a neoplasm?

Neurofibroma would be possible.

DR. Wood: Would one not see a tumor on the radiograph if it were large enough to obstruct the trachea? What other tumors would one consider?

Dr. Barrett Taussig: This man is too old for teratoma.

Dr. Wood: Could this be Hodgkins' disease?

DR. TAUSSIG: One can have lymphosarcoma in the mediastinum without evidence of it elsewhere.

Dr. Wood: Yes, one can in lymphosarcoma and Hodgkins' disease have an enlargement of the lymph nodes around the trachea.

DR. TAUSSIG: That would show in the radiograph.

Dr. Wood: Yes, one would expect to see shadows. What happens in carcinoma of the trachea? Does it cause respiratory obstruction before any other sign? Dr. Goldman: Yes.

DR. Wood: What about carcinoma of the esophagus

itself?

Dr. Taussig: I have never seen a patient with carcinoma of the esophagus with such symptoms. In such a disease the patient is unable at first to swallow solid

foods and then later soft foods. I favor carcinoma of the trachea.

Dr. Wood: We do not have much evidence to show

DR. Wood: We do not have much evidence to show exactly where this lesion is, and it is difficult for us to diagnose the type of tumor.

DR. TAUSSIG: Without a bronchoscopic examination it is most difficult.

Dr. Wood: The patient was too ill to make these studies.

Dr. Taussig: I am still not certain as to the interpretation of the oblique film.

DR. Donald Bottom: The aorta was lengthened and widened. The patient was fluoroscoped and there was nothing to suggest a tumor.

nothing to suggest a tumor.

Dr. Wood: We must reach some sort of conclusion so that Dr. Moore can tell us the answer. There are two possibilities from this discussion. The first diagnosis is an aneurysm of the aorta, in spite of the evidence against syphilis. The second is neoplasm of the neck. From a vote of the staff the consensus is that this is a neoplastic obstruction of the trachea.

DR. WOOD'S DIAGNOSIS

Aneurysm of the aorta. Neoplasm of the neck.

ANATOMIC DIAGNOSIS

Epidermoic carcinoma of the trachea with extension to and ulceration of the mucosa of the esophagus.

Acute tracheobronchitis.

Bronchopneumonia of all lobes of the lungs.

PATHOLOGIC DISCUSSION

Dr. Robert Moore: The tumor in this patient in-

volved both the trachea and the esophagus and it is difficult to determine the exact primary site. The microscopic studies reveal an ulcerating mass in the trachea with normal epithelium in direct continuity with neoplastic epithelium. On the other hand, the tumor in the esophagus is largely an infiltrating mass beneath a normal, or slightly hyperplastic, epithelium. The histologic evidence is then in favor of the primary

carcinoma of the trachea.

Evidence from the clinical history also would point to the trachea. The first symptom was difficulty in respiration, and dysphagia did not appear until toward the end of the illness. The observation of metastases is also in favor of carcinoma of the trachea in contrast with carcinoma of the esophagus. It seems unlikely that a man would live with a malignant tumor of the esophagus for as long as this man did and not develop metastases. On the other hand, this is not unusual in primary carcinoma of the trachea. The cellular type of the carcinoma, that is, an epidermoid or squamous type cell carcinoma, is of no value in differentiation since both tumors of the esophagus and of the trachea are more frequently of the epidermoid type.

Dr. Woop: Dr. Taussig should be congratulated on his reasoning. Dr. Walsh, what is your opinion concerning bronchoscopic examination of a patient as ill

as this man was?

Dr. Walsh: If you thought a patient has an aneurysm it would be safe to bronchoscope him as long as you went about the process slowly and carefully. This man was very sick. It would not have been easy, but it could have been done.

STUDENT: I am not clear as to why the man had

paralysis of the left vocal cord.

DR. WALSH: Because of the involvement of the left recurrent laryngeal nerve.

CASE 52

PRESENTATION OF CASE

C. D., a 67 year old white housewife, entered Barnes Hospital for the first time on August 5 and was discharged October 5, 1943.

Family History.-Not obtained. Social History.—Noncontributory.

Past History.—The patient had never felt physically well but had had no significant illnesses. For many years she suffered mild digestive disturbances for which she took a self-prescribed diet consisting of very little milk, meat or bread. In 1930, a physical examination showed no abnormalities. In 1934, another physical examination revealed the blood pressure to be 160/85. Blood count, urinalysis, fasting blood sugar and nonprotein nitrogen were normal. The basal metabolic rate was minus 11. The patient was placed on 1 grain of thyroid a day.

Present Illness.—At 7:15 p. m. on August 5, the patient fell down a flight of ten steps in her house. When found some fifteen minutes later she was unconscious and was immediately brought to Barnes Hospital.

Physical Examinaton.—Temperature was 36.8 C., pulse 80, respiration 20 and blood pressure 140/86. The patient was a well developed and well nourished white female who appeared to be her stated age. She was alert, well orientated, cooperative and apparently in pain. Over the left wrist was a marked hematoma; another presented over the right thumb and there were multiple contusions

of both legs. The head showed no signs of injury. The pupils were pin point and did not react to light or accommodation. The hearing was acute. The teeth were in good repair. The tonsils were small with some injection of the anterior pillars. The neck showed no rigidity. The trachea was in the midline. The lungs were clear. The heart was not enlarged, the sounds were of good quality, the rhythm was irregular with many ventricular extrasystoles. No murmurs were heard. The abdomen presented no abnormalities. There was tenderness over the spine from the fourth to the ninth dorsal vertebrae. The left wrist was held in a typical "silver fork" position. Neurologic examination revealed no sensory disturbances and the reflexes were all intact.

Laboratory Findings.—Blood count: red cells 3.610.000, hemoglobin 10.7 grams, white cells 9,700; differential: "stab" forms 8 per cent, segmented forms 69 per cent, lymphocytes 16 per cent, monocytes 7 per cent. Urinalysis entirely normal. Kahn reaction negative. Roentgenograms revealed evidence of Colles' fracture of the left wrist and a compression fracture of the sixth dorsal vertebrae.

Course in Hospital.—Under local anesthesia the fracture of the left wrist was reduced and a cast applied. A body cast was applied over the spine in hyperextension. For two days after admission the patient failed to void and a large distended bladder developed which on catheterization yielded 1,600 cc. of urine. On urologic consultation, after cystometric measurement, a diagnosis of neurogenic bladder was made. A retention catheter was inserted. This remained in place for five weeks. A urinary infection developed, as revealed by many pus cells in the urine. The patient gradually became able to walk and was discharged improved.

Second Hospital Admission.—March 7 to March 12, 1944.

Interval History.—The patient came in in coma and the history was secured from her attending physician. He stated that in 1935, 1938 and 1940, she had had three separate episodes of falling, questionably associated with momentary vertigo. She was seen occasionally thereafter and it was noted that her pulse rate ranged between 80 and 90 beats per minute. In January 1943 it was first observed that she had a fluctuating blood pressure, varying from approximately normal to 210/110. Once she complained of pain in the head, fatigue and nervousness. Her pulse rate then was 48 but on the following visit was 80. No electrocardiograms were taken at that time. Five days previous to admission she developed an upper respiratory infection. Two days later she was nauseated for several hours and vomited several times. She then suddenly lost consciousness and was found on the floor by her husband. She recovered from this attack in a few minutes. Her physician stated that when he saw her the heart rate was 40; the rhythm was regular. The blood pressure was 220/120. During the following three days there were numerous attacks of loss of consciousness and when examined during these the pulse could not be felt nor the heart sounds heard over periods of several minutes, other than occasional fluttering sounds. At these times the patient appeared to be dead excepting an occasional shallow gasping inspiration which occurred as long as one or two minutes apart. On the day previous to admission coma developed but during this unconsciousness there had been episodes of pulselessness lasting from eight to ten minutes and during these times the patient would become very cyanotic.

Physical Examination.—Temperature was 38.5 C., pulse 50, respiration 25 and blood pressure 140/80. The patient was unconscious and appeared acutely ill with fairly rapid, deep respirations which sometimes were stertorous. Occasionally she would cough and then utter a small outcry. There were small amounts of frothy mucus at the corners of the mouth. There was questionable cyanosis. She would not respond to any stimuli. The skull showed no abnormalities. The pupils were constricted but reacted to light and accommodation. The eyegrounds could not be examined adequately but they appeared normal. The ear drums were normal. The jaws were tightly clenched and could not be pried open. The trachea was in the midline. The chest was symmetrical. Percussion note was resonant over the lungs. There were medium and coarse rales heard at both bases posteriorly. Throughout the lungs ronchi were present. The heart presented a slight precordial heave. The apical impulse was not localized; there was occasional shock but no thrill. On percussion the left border extended to the midaxillary line in the sixth interspace. There was no enlargement to the right. The rate was slow and the rhythm irregular from occasional ventricular extrasystole. The intensity of the beat varied. There was no pulse deficit, the sounds were of fair quality, there was a systolic murmur at the apex, there were no accentuations of the second sounds. The abdomen was obese and distended. The liver was not felt. There was no apparent fluid. The bladder was overfilled. The vulva was slightly edematous. There were a marked rectocele and slight cystocele. The body of the uterus was not felt. There were no adnexal masses. Rectal examination showed the spincter tone to be fair. The arms were flaccid and the fingers were held in slight flexion with some stiffness. The legs were likewise flaccid and there was no edema. All tendon reflexes were absent and the patient responded but slightly to painful stimuli.

Laboratory Findings.—Blood count: red cells 5,080,000, hemoglobin 16.1 grams, white cells 11,000, differential: "stab" forms 6 per cent, segmented forms 77 per cent, lymphocytes 13 per cent, monocytes 4 per cent. Urinalysis: albumin 2 plus, sugar trace, no casts or blood cells. Kahn reaction negative. Nonprotein nitrogen 13 mg. per cent. Blood culture showed no growth. Electrocardiogram showed partial heart block with long periods of

2:1 auriculo-ventricular block and infrequent 3:1 auriculo-ventricular block. There were multiple ventricular premature contractions from several foci

Course in Hospital.-On March 9, the patient had shown very little change although the pulse seemed somewhat more regular. The bladder remained distended. The reflexes continued to be absent. On that day the urine showed 3 plus albumin and 4 plus glucose, but the patient had received intravenous glucose solution. The blood sugar drawn twelve hours after glucose infusion was 114 mg. per cent. On March 11 the patient developed a moderate degree of dependent edema. The temperature, which had remained elevated throughout her stay, was 39.1 C. There were no changes in the lungs from those of admission. The pulse was irregular but fairly strong. The patient remained comatose and the reflexes were completely absent. On that day the intern was called because the pulse had become imperceptible. The respirations had almost ceased and the blood pressure could not be obtained by the nurse. When the intern arrived the pulse was again present, the blood pressure 100 70, the rate 60. Electrocardiogram taken on the day of death showed a 2:1 heart block and an occasional ventricular premature contraction. Tracings of lead II taken thirty minutes before death showed no auriculo-ventricular block. Roentgenogram of the lungs (the film was not entirely satisfactory) showed the cardiac silhouette to be slightly enlarged. The aorta was lengthened and a ring of calcium was seen in its arch. There was some evidence of pulmonary infiltration in the perihilar region on the right side which was not clearly visualized because of movement of the patient. The diagnosis was questionable cardiac enlargement, 1 degree, aortic lengthening, arteriosclerotic aorta and bronchopneumonia. The patient continued to exhibit signs of cardiac failure and expired.

CLINICAL DISCUSSION

Dr. Harry Alexander: This is a very unusual case. The striking manifestations are the attacks of loss of consciousness over a period of nine years with associated cardiac irregularities. It is recorded that on one occasion the heart was not heard for eight or ten minutes. These manifestations of loss of consciousness and cardiac prolongation were associated with symptoms of cardiac and pulmonary disease. We might consider the possibility of heart block. To help us understand the mechanism of heart block, I have asked Dr. Massie to explain what occurs in the electrocardiographic tracing in this condition.

DR. EDWARD MASSIE: Heart block is induced at times by increased vagal tone, at times by a direct action on the heart. Heart block appears in one or more of the following locations: (a) between the sinus node and auricle (S-A block), (b) between the auricles and ventricles (A-V block), and (c) within the ventricles (intraventricular block).

Sino-auricular block is a relatively infrequent condition in which neither the auricles nor the ventricles are activated by the normal pacemaker because the impulse is prevented from leaving the sinus node. Most forms of this type of block are due to increased vagal

tone. Most commonly it results from digitalis intoxication; less often it results from an acute infection or from

medication with quinidine.

Auriculo-ventricular block (A-V block) is one of the commonest forms of heart block and is the condition in which conduction through the bundle of His is slowed or impeded. It occurs in three chief forms: (a) prolonged A-V conduction, in which the A-V transmission time is prolonged but every impulse reaches the ventricles, commonly called first degree A-V block; (b) partial A-V block (second degree A-V block) in which some of the auricular impulses fail to reach the ventricles. The degree of block can vary from one preventing conduction of very few auricular impulses to one stopping almost all impulses. Partial A-V block can give rise to regular periodic or irregularly spaced blocked impulses. The commonest form of regular partial A-V block is the 2:1 A-V block, in which every other auricular impulse is blocked; and (c) complete A-V block in which none of the auricular impulses reaches the ventricles. The heart is thus controlled by two pacemakers, the auricles by the sinus node and the ventricles by an idioventricular pacemaker, apparently located just below the block, in that ectopic focus having the fastest inherent rate of discharge. This type of block may be called third degree A-V block.

Intraventricular block indicates block within the ventricles. This diagnosis is made only when there is widening of the QRS span of 0.11 second or more. In left bundle branch block the QRS complex is upright in lead I and inverted in lead III. In most instances the S-T segment and T wave are deviated in a direction opposite to the QRS complex of the lead. In right bundle branch block the QRS complex is inverted in lead I and upright in lead III. The S-T segment and T wave contours in general are deviated opposite to

the major QRS phase.

Now in regard to the patient under discussion today, review of her electrocardiograms reveals the presence of a partial heart block with 2:1 A-V block. In addition, one of her records gives striking evidence of chaotic heart action in that there are runs of ventricular extrasystoles arising from different foci, some of which are located in the right ventricle and others in the left ventricle and other foci located at intermediate points. Thirty minutes before death the record sur-prisingly showed absence of the A-V block and aside from a rapid pulse rate there was no definite defective conduction. This disappearance of the block just before death is surprising but in a study of terminal electrocardiograms which we are carrying on at present we have found that one can get a number of such bizarre occurrences just before death.

Dr. Alexander: Thank you, Dr. Massie. If a patient has complete heart block in which the auricles and the ventricles are disassociated and the ventricle is beating very slowly, may one suffer from Stokes-Adams attacks? Do you believe that although we have no record of complete heart block, this patient may have

had such attacks?

Dr. Massie: This patient could easily have had the Stokes-Adams syndrome, which is the name applied to the condition of transient syncopy associated with severe bradycardia such as a few beats per minute or sometimes with transient asystole.

Dr. Alexander: Do you believe that was so in this

Dr. Massie: There is insufficient evidence in this case to make a diagnosis of Stokes-Adams syndrome. We see evidence of partial heart block in some of the electrocardiograms and it is logical to suppose that a transient period of complete asystole could have occurred with marked reduction in cerebral blood flow.

Dr. Alexander: It is recorded in the history that two physicians listened for this patient's heart beat and heard none for from eight to ten minutes. Is that

possible?

Dr. Massie: I believe it is impossible for a patient to recover after a period of asystole lasting for ten minutes. I make the suggestion that although no heart beat was heard, the ventricle was contracting weakly, but with enough force to produce some cardiac output. Usually a period of asystole lasting over from two to three minutes will not be followed by recovery. In studying terminal electrocardiograms I have seen patients who, from the point of view of physical examination were dead, but whose electrocardiograms showed evidence of continued ventricular contractions for some time and in one case for about fifteen minutes after no heart beat was demonstrable by auscultation.

Dr. Alexander: It was said that one could hear a fluttering sound. Would you hear a "flutter" in heart

block?

Dr. Massie: On auscultation one cannot hear ventricular sounds in ventricular fibrillation. In complete heart block one can hear the ventricular and occasion-

ally the auricular contractions.

Dr. John Smith: The electrocardiogram showed a heart in which there were a great many ectopic beats occurring one after another. Such a heart would be presumed to be extremely irritable, and the question arises as to transient ventricular fibrillation, also associated with attacks of unconsciousness of the Stokes-

DR. ALEXANDER: Lasting for ten minutes?

Dr. Smith: I would be dubious that it could occur for ten minutes without causing death.

Dr. ALEXANDER: What is your opinion as to what

happened in this eight to ten minute period?

Dr. John Smith: I have never seen so long a period with "apparent" asystole but I have seen it occur experimentally in animals. If the heart-lung preparation is allowed to become anoxemic, the heart will gradually dilate and become very weak. It will continue to beat with a perfectly normal rhythm, but so weakly that one can hardly hear the beat with the stethoscope directly on the heart. Those hearts, when respiration is resumed, will often resume beating strongly.

I am interested in these flutterings in the chest. In the experimental animal, at least during anoxemia, I frequently have noted marked twitching and fibrillary motions of the intercostal muscles. I wonder whether the flutterings heard in this patient might have been muscular contraction of the thoracic wall.

Dr. ALEXANDER: Are there other suggestions? Dr. Massie: Dr. Alexander, before the meeting you suggested to me the possibility of carotid sinus syndrome. This seems to be an excellent suggestion as far as this patient is concerned.

Dr. Alexander: The question arises as to whether carotid sinus syndrome would cause cardiac damage? The heart was somewhat enlarged, but as Dr. Bottom has told us, this was very hard to detect. There was some calcium in the aorta. At the very end there was some failure. All through the patient's life, however, there was no indication of heart failure. From the patient's electrocardiogram would you expect to find a seriously damaged heart, Dr. Massie?

Dr. Massie: No, I would not expect to find a seriously impaired heart. Certainly the size of the heart is only

slightly more than normal.

Dr. Alexander: If she had heart block and she began to have ventricular asystole nine years before, and a blood pressure of 160 during these attacks, would you expect to find the heart seriously damaged?

Dr. John Smith: I think there will be a considerable degree of fibrosis in the myocardium. I do not believe that there is great destruction in the area around the

bundle of His.

Dr. Alexander: A half hour before death this woman's heart was functioning fairly well. If she had fibrosis or some organic lesions in the myocardium the heart block might be explained.

DR. WILLIAM OLMSTED: This woman could have a

serious cranial lesion.

Dr. Alexander: Would this take place because of the existence of hypertension and calcification in the aorta and a great deal of coronary damage?

Dr. Olmsted: I do not see how we can explain five

days of coma by the cardiac disease alone. There must be another explanation.

DR. ALEXANDER: I would still like to consider the possibility of carotid sinus disease. If the carotid sinus was sensitive on either side the first thing we must consider is the vagal effect. This effect involves the heart so that one may get 2:1 to 3:1 block. Secondly, there would be lowering of blood pressure; third, attacks of fainting would be observed. Also, carotid sinus disease may exist for a long period of time.

DR. OLMSTED: In carotid sinus disease a striking

symptom is convulsions.

DR. ALEXANDER: Yes, that is right. The convulsions may not come on immediately, but I do not know if they could last ten minutes. They may not come on for the first few minutes. We find no history of convulsions so that is an excellent point against the diagnosis. Are there other suggestions?

Dr. Barrett Taussig: The value for the blood sugar would be in keeping with pleochromocytoma. This diagnosis would explain the recurrent attacks of paroxysmal hypertension with associated loss of con-

sciousness.

Dr. Alexander: That is an excellent idea as it might well explain the intermittent hypertension unconsciousness.

CLINICAL DIAGNOSIS

Carotid sinus syndrome.

PATHOLOGIC DIAGNOSIS

Arteriosclerosis of the aorta and coronary arteries, moderate; and of the splenic, superior mesenteric and renal arteries, slight.

Narrowing of the ostia of the right coronary artery

and the celiac axis artery.

Arteriolarnephrosclerosis, slight.

Multiple acute ulcers of the first part of the duodenum.

Perforation of an ulcer into the peritoneal cavity. Localized peritonitis in the region of the perforated ulcer.

PATHOLOGIC DISCUSSION

Dr. Robert Moore: There are two groups of pathologic conditions, perhaps related to one another, the lesions of the cardiovascular system and the acute perforated ulcers of the duodenum.

The heart was not enlarged but there was moderate arteriosclerosis of the coronary artery and narrowing of the ostium of the right coronary artery. Thoughout the myocardium there were small foci of fibrosis. Sections through the base of the interventricle septum did not reveal any focal change as an anatomic basis for the heart block.

The perforated ulcer of the duodenum was acute and had been present for only a day or so. The cause is not apparent. Perhaps there was sufficient anoxemia of the duodenal wall from the poor cardiac action to cause hemorrhage and necrosis.

ABSTRACTS AND DIGESTS

HISTORY TAKING IN ALLERGY AND OCCUPATIONAL ALLERGY

An Outline For and a Comparison of Results from 200 Histories and Skin Tests, Oscar Swineford, Jr., and W. M. Weaver, Ann. Int. Med. 20: 293, 1944.

The author finds in the literature a disproportionate emphasis on cutaneous testing as compared to history taking. He believes that, in many simple cases of allergy, skin testing can be avoided if intelligent use is made of the information obtained

from a properly taken history. He gives an excellent and practical outline for allergy history taking, which supplements those chapters on history taking in the allergy textbooks.

The information obtained from two hundred patients by means of this outline is summarized and compared with the results of skin tests. There were a great number of positive skin reactions with a negative history with the best correlation when inhalants were the causative allergen.

Occupational Allergy of the Respiratory Tract, Vincent J. Derbes, and Travis Windsor. Ann. Int. Med. 20:255, 1944.

This discussion of occupational respiratory allergy consists of case reports of three illustrative cases, a review of the literature, the medicolegal considerations and its treatment.

There is reported an instance of perennial vasomoter rhinitis and asthma, skin sensitive to rabbit hair, in an employee of a roofing material manufacturer. The significance of this skin sensitivity was not realized until it was ascertained that rabbit hair was a component of roofing felting. Complete relief was obtained by transfer to another department.

Another instance of vasomotor rhinitis, asthma, abdominal discomfort and diarrhea, was reported in an accountant employed in a coffee importing firm, with skin sensitivity to green coffee bean. The ingestion of coffee induced no allergic symptoms. Relief was obtained by hyposensitization.

A third instance of nonseasonal bronchial asthma, worse during the winter, was in an individual with ragweed hay fever, who raised quail. There was skin sensitivity to chicken and quail feathers. Hyposensitization permitted him to continue his work.

Certain occupations have particular allergen inducing symptoms. Among laboratory workers, the dander of the animal with which they work is the more frequent. Instances of sensitization to the larvae and eggs of moths, of dermastid larvae and of Daphnia are noted. Among food handlers, the best known occupational asthma is that of bakers; the symptoms are induced by the inhalation of the various flours. The dusts of grain mills or of grain elevators may be a specific atopen and infrequently it is one of the various smuts. Sensitivity to soy bean occurs and it may be operative, from its milling to all the manufacturing processes in which it is used. Powdered garlic was the cause of symptoms in a worker in a sausage factory. Weevils in stored peas and beans were the cause in others so exposed. Among beauticians, orris root was the most frequent cause; now, the components of wave setting material—karaya gum, quince seed, acacia, green tragacanth—for example are additional likely sensitizers. Lycopodium, henna and ursol have also been reported. Among pharmacists and chemists, one must distinguish between nonspecific irritants as sulphur dioxide and allergen. Among furriers, the sensitization is

to the furs, to paraphenylenediamine or to insecticides.

In view of two judicial decisions, one, "an occupational disease is one which is not only incident to an occupation, but the natural, usual or ordinary result thereof" and another, concerned with the adjudication of bronchial asthma, it was decided that the asthma could not be attributed to the occupation because "it is not a disease known to be incidental to that employment," it is likely that asthma will be considered an occupational disease only in rare instances. Its compensability, however, is determined by the judicial interpretation of compensation laws in the various states.

The therapy is based on a careful etiologic diagnosis. Complete avoidance of the causative allergen is the treatment of choice; removal of the patient from the injurious environment is always successful. Hyposensitization is employed when complete avoidance is unpracticable. Accessory allergens are also controlled.

Comment: These papers call attention to the importance of the clinical allergy history and emphasize that skin tests are confirmatory rather than diagnostic. Such a history, when it includes an appraisal of the personality, a dietetic history, and a description of the home and business environments with their insect emanations, often indicates the dominant allergen; the positive skin reaction confirms the clinical judgment as illustrated by the reported cases. Nothing takes the place of a good history. It will indicate whether it is necessary to test with artichoke, or with deer hair, or with an extract of the May fly, as well as with the common allergen.

C. H. EYERMANN, M. D.

EAR DROPS IN ACUTE OTITIS MEDIA

Ear Drops in Acute Otitis Media: An Evaluation of Various Medicaments and an Analysis of the Untoward Effects of Antipyrine and Benzopyrine. Matthew S. Ersner and Maurice Saltzman. Ann. Otol., Rhinol. & Laryng. 51:471 (June) 1942.

For the relief of earache, heat as the sovereign remedy has come down through the ages. When drugs and chemicals came into use, camphorated oil for the relief of earache was accepted with favor, the sense of warmth imparted by camphor contributing to ease pain. However, phenol glycerin has been used by otologists all over the world for acute inflammation of the drum since the turn of the century. In the early days from 10 to 20 per cent of carbolic glycerin was employed, but the concentrated solution was found to cause severe pain if perforation of the drum had occurred. From the instillation of the strong drops the membrana tympani occasionally assumed a macerated appearance. The 5 per cent concentration of carbolic acid in glycerin was unanimously accepted as the drops of choice for acute otitis media. For analgesia, a 10 per cent solution of opium in oil as ear drops has been a favorite preparation among the older practitioners. Bonain and Gray were the first to

incorporate cocaine into mixtures for local anesthesia in surgery of the ear drum. According to Bonain's method, equal parts of cocaine, menthol and carbolic acid are rubbed together in a mortar until liquefied. A cotton-wound tip of an applicator is then dipped into the solution and applied carefully along the line of proposed incision. Gray's mixture consists of 15 per cent solution of cocaine in equal parts of rectified spirit and aniline oil. From fifteen to twenty drops of this preparation are instilled into the ear and allowed to remain there for about ten minutes. With the discovery that the anesthetic action of cocaine is due to its containing a benzoic acid radical in combination with a nitrogen basic group, synthetic chemists are now able to produce analagous compounds of lower solubility by reducing the basic nitrogen grouping.

Antipyrine as a local anesthetic has been given an extensive trial during the last fifty years. However, in most branches of medicine, the employment of antipyrine as a local anesthetic agent has been abandoned. The analgesic action of antipyrine benzoate (benzopyrine) is somewhat enhanced by its benzoic acid radical. When applied locally, however, occasionally it may cause contact dermatitis, an untoward effect ascribed to synthetic benzoates.

Pain cannot be relieved unless (1) the serum or pus contained in the middle ear may find an escape through the eustachian tube when the congestion about the orifice of the canal subsides, or (2) drainage be provided by a perforation in the membrana tympani. A great deal of unnecessary trouble has been caused by the injudicious use of a proprietary preparation consisting of antipyrine and benzopyrine in a glycerin solvent that is prescribed empirically and is also sold indiscriminately over the counter for earache. It is known that in a true case of suppurative otitis media, myringotomy is indicated.

J. L. Myers, M.D.

BOOK REVIEW

A Textbook of Medicine. By American Authors. Edited by Russell L. Cecil, A.B., M.D., Sc.D. Professor of Clinical Medicine, Cornell University Medical College; Attending Physician, New York Hospital; Visiting Physician, Bellevue Hospital, New York City. Associate Editor for Diseases of the Nervous System, Foster Kennedy, M.D., F.R.S.E. Professor of Clinical Neurology, Cornell University Medical College; Attending Physician, New York Hospital; Visiting Physician in Charge, Neurological Service, Bellevue Hospital. Consulting Physician, New York Neurological Institute. Sixth edition, Revised and Entirely Reset. Illustrated. Philadelphia: W. B. Saunders Co., 1943. Price \$9.50.

The new edition of this standard text is printed two columns to the page. The narrower column makes for easier reading. The volume, which has been brought up to date and includes a section on aviation medicine, will be found useful, both by the student and by the practitioner. Reasonable attention is given to the matter of differential diagnosis and the therapeutic indications are fairly fully outlined.

B. Y. G.

THE JOURNAL

of the

Missouri State Medical Association

Telephone: Newstead 0404-05 623 Missouri Bldg.

Subscription \$3.00 a year in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent.

SEPTEMBER, 1944

EDITORIALS

ANNUAL FALL CONFERENCE OF THE KANSAS CITY SOUTHWEST CLINICAL SOCIETY

The Kansas City Southwest Clinical Society has announced the dates for the twenty-second Annual Fall Clinical Conference as October 2, 3 and 4, 1944. The broadside issue of the Kansas City Medical Journal carries the list of distinguished guest speakers, scientific presentations and program of symposia to be presented by members of the society.

The meeting will open with a round table discussion directed by Dr. Ira H. Lockwood, Kansas City, devoted to the newer things in medicine as portrayed by the

participating guest speakers.

Symposia on "Systems" will be presented in three sections each on Tuesday and Wednesday mornings, October 3 and 4. These will include gastrointestinal, obstetrics, pediatrics, cardiovascular, urogenital, headache and backache. Arrangements have been made at the Municipal Auditorium for sufficient accommodations for these morning sessions to insure ample seating facilities for all registrants. The scientific presentations by the nine distinguished guest speakers will be made before the general assemblies during the three day meeting.

If any physician has not received a copy of the Kansas City Medical Journal giving the program, one will be sent upon request to the executive office, 208 Shukert Building, Kansas City 6, Missouri. This program gives physicians opportunity to take advantage

of a wealth of practical presentations.

WHAT KIND OF MEDICAL OFFICERS DO THE ARMED SERVICES WANT?

The following editorial appeared in the August 1944 issue of Surgery, Gynecology and Obstetrics and was written by Dr. Evarts A. Graham, St. Louis.

The medical schools and civilian teaching hospitals of this country are engaged in the education of medical officers for the armed services. They are the only institutions in existence qualified to render this service, and all of the physically fit males who go through this education will become medical officers in either the Army or the Navy. That the efforts of the medical schools and teaching hospitals have been successful is attested by the extravagant praise accorded, especially, to the surgeons in the Army and Navy for the astonishing high percentage of wounded men returned to active duty. In a recent address before the American

Surgical Association the Surgeon General of the United States Army stated that never before in any war had the wounded of our army received such excellent surgical care. Likewise many correspondents in popular articles have emphasized this fact. The influence of this knowledge on the morale of both the combatants

and the home front is incalculably great.

The surgeons who are responsible for this splendid record are men who not only had the benefit of four years in a medical school following a good premedical training in the colleges but in addition spent several years in special training in our civilian teaching hospitals. Many also have fulfilled the requirements for fellowship in the American College of Surgeons and for certification by the American Board of Surgery. They are the product of the resident plan of graduate instruction which required many years to become established on a sufficiently firm basis to influence appreciably the practice of surgery in this country. In the years immediately preceding the present war several hundred men annually were receiving a training which met the high standards of the American Board of Surgery. The Army has recognized the importance of qualification by that Board and by the American College of Surgeons by giving a certain amount of preferential consideration to the members of the College and particularly to those who hold certificates of the American Board.

This splendid plan, however, which has been responsible for the excellent care of the wounded has been scrapped by the War and Navy Departments. Laymen who can have no adequate understanding of medical education have dictated what may be given in a pre-medical course, have streamlined the medical course itself, and have practically destroyed the resident system of training. Many medical officers will now enter the army to serve in battalion aid stations and in other places demanding a knowledge of surgery whose maximum graduate hospital experience has been nine months of a rotating intern service with perhaps only two months in surgery. Is this the kind of medical officer the armed forces want? Pity the wounded if it

Let us imagine a group of surgeons with the authority to prescribe the education of line officers, be they army or navy. Would they wreck West Point and Annapolis? Would they reduce their faculties by 40 or 50 per cent at the same time that they increase the number of students? Would they reduce the period of training of artillery officers or submarine commanders to an amount which could not possibly make them efficient? It seems unlikely that they would. Yet if they were to exercise an interference with the training of line officers analogous to what the War and Navy Departments have done to the West Points of medicine, that is exactly what they would do.

Is the medical officer of less value than the line offi-

cer? The General Staff may think so, but we know full well that a modern army could not function at all without its medical department. Conceivably it might dispense with any of its other branches temporarily but no large concentration of troops could occur anywhere without taking the steps necessary to prevent the spread of disease. That fact has been demonstrated so often in past history that no further argument in

support of it is necessary.

Although the Surgeon General of the Army is no longer a member of the General Staff the army must appreciate the value of the medical officers because it wants so many of them even if they are only halfbaked. In fact much of the present difficulty arises because of the large number wanted. At the outbreak of the present war we were told that the army needed 6.5 medical officers for each 1,000 men in the army. This formula was not in existence during World War I but was arrived at later during peace time. Despite the excessively high ratio of one medical officer for NEWS 193

every 154 men, little harm would have resulted when considering a small peace time army. But what a difference when the General Staff began to talk in terms of an 8 million army, and the Navy of a force of two and one half millions! If the ratio were to be maintained, this meant that 68,250 medical officers were to be needed for the armed services out of a total number of approximately 160,000 medical graduates in this country. Only 58 per cent of those who had ever graduated from a medical school, including those not in practice, were to be left to care for the ills of the home population. Let us say that with ten million of the population in the armed services the remainder would amount to 120 million. That would mean then one doctor for each 1,293 people. In other words the civilian doctor would have eight times as many people to care for as the army or navy doctor.

The demand for so large a number of medical officers is the fundamental cause of the disruption of the prewar efficient plan for their education. Apparently only numbers count because of the baneful influence of the magic ratio of 6.5 per 1,000. "Better have a lot of poor medical officers than a smaller number of good ones," seems to be the philosophy of the laymen running the War and Navy Departments. We know the fallacy of that reasoning. Shall we send our men into battle with Civil War muskets if the supply of modern arms is deficient? Of course not. Anybody can see how ridiculous and murderous that would be. But perhaps only doctors themselves can appreciate how murderous

a half-baked medical officer can be.

Is it necessary that this large number of medical officers be provided? If it is then everybody will be glad to make the best of it. The armies of other countries have not been furnished with anything like so high a proportion of medical officers. The British, the Australian, and the Canadian armies, for example, get along with a proportion only a little more than one half of what is felt necessary by our armed forces; and the quality of the work done is excellent. If all of the eight million men of our army were to be in combat at one time then one medical officer to each 154 men would not be an excessive ratio. But it is well known that only a small minority of the men in the army will ever participate in actual combat and all of that group will not be in combat at the same time. Is not this demand for so many medical officers an unjustifiable extravagance for which there is no demonstrated need?

These remarks have been directed at the evil effects upon the medical officers themselves caused by the disruption of the only plan for developing properly trained surgeons which has ever been found to work. A similar editorial could be written on the disaster to the civilian population. Are we to go backwards a quarter of a century and to surrender to our two great allies the enviable position in medicine which this country occupied before the war? The British Commonwealth and Russia have not found it necessary to disrupt their medical education to anything like the extent which we have been forced to do. As a result we may find ourselves a poor third in medicine in the postwar world. Is it necessary? I know of no convincing evidence that it is. But nothing will be done to remedy the situation unless the medical profession itself, the only body capable of understanding how a medical officer should be educated, speaks its mind loud enough for Congress and the President to hear. Reduce the 6.5 ratio to a reasonable one and much of the basis for the wrecking of our medical education will disappear. The 9-9-9 plan will not train surgeons and will not provide competent surgical officers. Still less will the nine month's rotating internship. That plan should be scrapped and in its place a reasonable program for the training of medical officers should be substituted immediately after a proper inventory of the real needs of the armed services has been made.

Finally it is a pleasure to recall the wisdom of Aesop

in this connection. The hen that laid a golden egg every day was killed by its owners in order to get all the gold at once. But alas! no gold was found inside its body and the source of the daily golden egg was destroyed. Is there not a parallel here?

NEWS NOTES

Drs. T. C. McClure and E. J. Nienstedt, Sikeston, were recently appointed members of the advisory committee for the Sikeston General Hospital. Dr. H. M. Kendig, Sikeston, city health officer, is an ex officio member of the committee.

Dr. E. G. McGavran, Clayton, Health Commissioner of St. Louis County, has returned recently from Central America where he spent six weeks with a group of selected individuals to study tropical diseases.

Drs. W. A. Bloom, Fayette; Howard B. Goodrich, Hannibal, and Robert Mueller, St. Louis, were speakers at an Allied Health Conference for Northeastern Missouri at Hannibal on August 15.

RANDOM OBSERVATIONS

BY A ROVING REPORTER

Some of the joys of travel in 1944—overcrowded dining cars, doubly sold pullman space, restless passengers, break-down of the air conditioning machines, and well behaved and badly behaved children. Moral—do not travel unless it is necessary.

Personal orchids of your reporter for this month to the Missouri State Medical Association and Dr. Carl F. Vohs for their courageous and far-seeing stand on the problem of prepaid medical care. Some day Missouri will be proud to have been in the vanguard of a movement to raise the standard of American life. We of medicine need have no fear of Mr. Wagner and his colleagues if we beat them to the draw with something better.

Orchids of medicine to *Time* magazine for the report on penicillin. It was factual, accurate and free of exaggeration. Why can we not have more reports of this sort so that many unfortunates are not disillusioned when they bring news of a new cure to their physicians?

One of the most encouraging reports from Washington in years is the appointment of Dr. Wilbur Sawyer as Medical Director of UNRRA. Dr. Sawyer has for some years been director of the International Health Board. No one is more familiar with medicine throughout the world and with medical statesmanship than he. The suffering people of Europe are assured of the best with Dr. Sawyer in charge.

A new name for an old disease of the German people—Hitlerosis psychopathia. For a century only the first name has changed—first Bismarkosis and then Wilhelmosis. Let us take stock with cold logic to determine if the disease is confined to a few or to many.

War seems to alter perspective. One great institution in this country requires four years of college for admission to the school of nursing and fifteen months for admission to the school of medicine.

The ramifications of war are most penetrating. Young men go off to the battle, the birth rate falls and the admissions to maternity hospitals decrease. Thus through intermediate steps financial difficulties of a specialized hospitals are traced to war.

How long will it take the people to realize what is now called "unselective" selective service means for the future of this country? An Army orders all men less than 26 into uniform. More than 4,000 young men engaged in war research are drafted as combat troops. The supply of doctors and scientists for 1948 and 1949 is decreased. Local draft boards are afraid to defy the brass hats in the name of cold logic and insurance for the future.

Modern civilization is complex. Poland supplied 90 per cent of the white clover seed for the United States. Poland was invaded and we sought other sources. In our own country the use of insecticides has brought about a sharp drop in effective pollination and hence of seed. More extensive cultivation of bees is the answer but Selective Service will not defer bee-keepers. Food for the world is necessary. Without seed there is no food. Where do we go from here?

Is there no end to Federal paternalism. An officer in the Army may draw an allowance for a wife who is in the Cadet Nurse Corps and is being supported and given her own allowance. Sure, it is government money and to be handed out freely. Lest we forget: government money is your money paid as income tax, amusement tax, cigarette tax, liquor tax and so on ad infinitum. To paraphrase an old saying: Millions for defense, but not one cent for unnecessary luxuries, sometimes known as chiseling.

A total of 15,374,698 persons or 11.6 per cent of the entire population received hospital care in 1943.

A poll of medical officers indicated that 56.4 per cent plan some sort of graduate work after the war. We at home should give thought to ways and means.

From an editorial in the Saturday Evening Post of June 3, "After all, being 'constructive' does not exclude essential repairs to the existing setup. The doctor who can cure a case of measles is just as 'constructive' as the philosopher who can create a new and better brand of human being—on paper."

ORGANIZATION ACTIVITIES

COMMITTEE ON CONTROL OF VENEREAL DISEASES

June 29, 1944, Jefferson City

The Committee on Control of Venereal Diseases met at the Missouri Hotel, Jefferson City, June 29, at 11:30 a. m. Those present were Drs. Rogers Deakin, St. Louis, Chairman; C. T. Ryland, Lexington; A. W. Neilson, St. Louis; John W. Williams, Jefferson City; R. R. Wolcott, Jefferson City; Mr. T. R. O'Brien, St. Louis.

A letter from Col. H. C. Moore, M. C., Surgeon, Army Service Forces, Omaha, concerning the difficulties encountered in controlling venereal disease in the Army and asking the aid of civilian physicians, was read. It was decided to ask the Editor of The Journal to publish the letter that physicians throughout Missouri may know of the desires of the Army in that direction.

A letter from Dr. Conrad, Chairman of the Premarital Blood Test Committee of the Missouri Social Hygiene Association, and presented to the House of Delegates of the Association and referred to the Committee on Control of Venereal Disease,

was read and discussed. It was decided to recommend to the Council that no attempt be made to clarify the bill at this time inasmuch as the law is working better now than at the time of Dr. Conrad's letter.

Dr. Wolcott presented information from the State Board of Health on (1) Venereal Disease Inventory, (2) Present Program, and (3) Projected Plans. Dr. Wolcott was asked to put this in manuscript form and submit it for publication in The Journal as a scientific article.

The lack of reporting by physicians in the state was discussed by Dr. Williams and upon motion it was decided that Dr. Williams should ask to present this matter at the next Annual Session of the Association.

The Committee was of the opinion that postgraduate talks on venereal disease should be continued to be given whenever the opportunity presented itself.

The Committee went on record as approving the present work of the State Board of Health in venereal disease work and made no further recommendations.

The meeting adjourned at 3:00 p. m.

Rogers Deakin, M. D., Chairman.

DEATHS

McHaffie, Charles Henry, M.D., Ash Grove, a graduate of Ensworth Medical College, 1906; a member of the Greene County Medical Society; aged 65; died April 12.

McIntyre, William Kress, M.D., St. Louis, a graduate of St. Louis University School of Medicine, 1923; Fellow of the American Medical Association; member of the St. Louis Medical Society; aged 47; died April 29.

Hoge, Moses W., M.D., St. Louis, a graduate of Washington University School of Medicine, 1883; Fellow of the American Medical Association; Honor member of the St. Louis Medical Society; aged 83; died May 5.

Hall, William Antoine, M.D., St. Louis, a graduate of Marion-Sims College of Medicine, 1893; Fellow of the American Medical Association; member of the St. Louis Medical Society; aged 75; died May 28.

Thie, Otto William, M.D., St. Louis, a graduate of St. Louis University School of Medicine, 1912; Fellow of the American Medical Association; member of the St. Louis Medical Society; aged 70; died May 31.

Tatum, Harry Erskine, M.D., Brunswick, a graduate of Jefferson Medical College of Philadelphia, 1900; member and former president of the Chariton County Medical Society; aged 67; died July 1.

LaRue, Frank, M.D., Dexter, a graduate of St. Louis University School of Medicine, 1910; Fellow of the American Medical Association; member and former secretary of the Stoddard County Medical Society.

Died While in Military Service

Casey, Elmer Barney M., M.D., St. Louis, a graduate of the National University of Arts and Sciences, St. Louis, 1917; member of the St. Louis Medical Society; Fellow of the American Medical Association; Lieutenant Colonel in the Medical Corps of the Army of the United States; entered active service as a reserve medical officer in July 1941; died in Washington, D. C., July 25, following an illness contracted while serving with the Army Medical Corps in the North African campaign; aged 51.

CORRESPONDENCE

M. L. GENTRY, M. D., ENTERS SERVICE

THE STATE BOARD OF HEALTH
OF MISSOURI
JEFFERSON CITY

July 21, 1944

To The Doctors of Missouri:

May I take this means of expressing my personal appreciation for your cooperation in caring for the dependents of the enlisted men in the armed services that have resided in Missouri in the past year. It has been through your cooperation and your patience that the Division of Child Hygiene has been able to administer this enormous program and make it run as smoothly as it has in the past year. We, in this office, have done all in our power to reduce the "red tape" necessary to make this program "work." I am sure that I express the same appreciation for the Members of the Board of Health and for all individuals in the State Health Department that have been connected with the Missouri EMIC Program.

I am at this time taking a military leave of absence from the State Board of Health to enter the Medical Corps of the Navy, and I am sure that my successor will give you as an individual physician the same whole-hearted cooperation that you have received from me as the director of the Division of Child Hygiene.

May I again in closing express my appreciation for your patience and whole-hearted cooperation.

Yours very truly,

M. L. GENTRY, M. D., M. P. H., Director, Division of Child Hygiene

VENEREAL DISEASE CONTROL

ARMY SERVICE FORCES

HEADQUARTERS SEVENTH SERVICE COMMAND OMAHA 2, NEBRASKA

29 April 1944

To the Editor:

We of the Seventh Service Command appear to have reached a stalemate in our fight against the venereal diseases. The venereal rates for the Army in this area showed steady downward trend until the middle of 1943. Since that time we have at best only held our own. Rates for the first two months of 1944 are actually 50 per cent higher than those of the corresponding months of 1943. It appears, then, that we are faced with the probability of a reversal of the favorable trend of

I am addressing you as the representative of the medical profession of the State of Missouri to enlist even greater aid from that important group in our effort to reduce the toll of venereal disease in our ranks. Lest any physician fail to recognize the opportunities for contribution of this end, the following

means are submitted for his consideration:

1. Refuse to treat officers or enlisted personnel of the Army for venereal disease without the specific approval in each case of the soldier's commanding officer. Army regulations require the soldier to report the existence of symptoms of venereal disease. Failure to do so subjects him to the possibility of disciplinary action. The physician who treats the soldier is thus entering into collusion to circumvent Army regulations. Of considerably more practical significance is the fact that the individual undergoing therapy with sulfonamides or arsenicals unknown to his unit officers may be placed in a position to endanger his life and that of his comrades.

2. The physician should support (and lead) community sentiment against prostitution, open or clandestine, with all the weight of his position as a community leader. We would like to ask him to go further

—in his public and private contacts to foster the development of those influences in home, school, church, and elsewhere which will strengthen the moral convictions of our youth and confirm them in continent behavior.

3. Support the extension of the community health services; assume leadership in the effort to establish and maintain an adequate preventive medical program for the community. The physician (as guardian of health) bears a heavy responsibility for leadership and

direction in these matters.

4. Recognize a grave responsibility in connection with the treatment of civilians with venereal disease; insist upon continuity of treatment to cure, using the services of the health officer, when necessary, to insure this. Share with the health officer a sense of responsibility for contact finding. If a busy practice prevents his active participation in this essential phase of the control effort, the physician may call for the assistance of the health department. Of particular concern to us, of course, are the contacts with military personnel, officer and enlisted, that are frequently obtainable by

careful questioning.

5. Sad experience has shown us that present methods in the diagnosis and treatment of gonorrhea, especially in the female, leave much to be desired. Findings of positive bacteriologic evidence of gonorrhea in the absence of symptoms have been shown to extend in an appreciable percentage of cases beyond the third month of observation. A disturbingly large number of individuals repeatedly named as the probable source of a gonorrheal infection show no clinical or bacteriological evidence of the disease. Reports occur with alarming frequency which indicate that women under treatment for gonorrhea have continued to infect soldiers. In the face of these convincing demonstrations of the inadequacies of diagnostic, treatment, and control measures, what is our recourse? Several safeguards suggest themselves:

a. A more cautious attitude on the part of the physician toward the individual under suspicion of gonorrheal infection—in particular, a greater reluctance to accept the negative laboratory report or negative

tive clinical evidence is indicated.

b. Improvements in the thoroughness of physical examination, including:

(1) greater use of laboratory services (darkfield) in the detection of the Treponema pallidum;

(2) better technic in obtaining specimens for Gram stain or culture in gonorrhea suspects and the recognition of the necessity for repeated examination;

(3) greater use of the consultant and laboratory services of the health department in doubtful cases.

6. Observations on the inadequacy of present methods have implications which the cautious physician will immediately recognize. In particular I should point out:

a. the medical absurdity inherent in the certificate of freedom from venereal disease and the dangers involved in the common practice of giving patients

(negative) laboratory reports;

b. the responsibility which the physician must assume for attempting to control the sexual activities of his patient until the probability of continuing infectiousness has been reduced to a minimum. This will necessitate carefully explaining to each patient the nature of his disease and the responsibility to his family and to society which the diagnosis entails. It may necessitate blunt warning to the careless; the invocation of legal measures against the recalcitrant;

c. the need for larger participation of the private practitioner in the effort to "sell" modern venereal disease prophylaxis to the public and especially to his

patients.

Yours very sincerely, H. C. MOORE, Surgeon Colonel, MC

INFANTILE PARALYSIS

ST. LOUIS AND ST. LOUIS COUNTY CHAPTER THE NATIONAL FOUNDATION FOR INFANTILE PARALYSIS, Inc.,

1709 RAILWAY EXCHANGE BUILDING ST. LOUIS 1, MO.

August 8, 1944

To the Editor:

I give you the following information feeling that there are many members of the Missouri State Medical Association who are not at this time fully aware of all the facilities offered by The National Foundation for

Infantile Paralysis, Inc.

The National Foundation for Infantile Paralysis is the spending organization for those funds raised the latter part of January each year in the March of Dimes, Mile O' Dimes, theater collections and allied activities. As you well know, one half of the fund raised each year is used by the National office to sponsor research and education and for rendering epidemic aid. The other one half of the fund so raised is turned over to a local Chapter, one of which is located in each of the 114 counties in the State of Missouri and the City of St. Louis. This Chapter is charged with the responsibility of rendering direct assistance by making voluntary contributions or grants of money at any time to individuals who are disabled or handicapped as a result of infantile paralysis, or to lawfully established agencies for the benefit of such persons when used for the purpose of prevention, diagnosis, treatment, alleviation or aftertreatment of infantile paralysis. By this we mean that the Chapter, among other things, may pay for hospital care for any individual, child or adult, regardless of age, race, creed or color, and provide medical and surgical needs, nursing and physical therapy. The Chapter may purchase orthopedic appliances, arrange for transportation of patients to clinics and hospitals and can provide equipment for hospitals when used in the treatment of infantile paralysis. In addition to the foregoing, the Chapter can pay the tuition, transportation and living expenses of doctors and nurses while attending courses at established institutions in the latest methods of treatment of infantile paralysis. The Chapter also can provide scholarships for the training of orthopedic nurses and physical therapists.

It is the policy of each local Chapter to work in cooperation and through other established agencies.

Physicians well know that as time goes by there will be new and changing methods of treatment, but the principal problem will always remain the same; that is, early diagnosis and treatment. We, therefore, say to you that each one of you, individually, should know your local Chapter and work with it, and call to its attention every case of infantile paralysis diagnosed and treated by you, so that the Chapter can arrange to assist in the hospitalization and the rendering of needed medical care. It is extremely important that every case be reported immediately to the State Health Director as the Health Director will, in turn, notify our State Office. The State Office will then see to it that the Chapter immediately makes its facilities available to the striken individual or his family.

We are at the present time in the process of making a census of all poliomyelitis cases in the state. It is our plan to keep a card on each case in the county where the individual resides, with a copy in the New York office. We will appreciate every physician in the State of Missouri sending to our state office the names and addresses of every known poliomyelitis case. It is our thought that out of this reporting we will learn of many cases and can inform the individuals about the

All cases from St. Louis and St. Louis County should contact the St. Louis and St. Louis County Chapter office at 1709 Railway Exchange Building (1), tele-

phone GArfield 2276. All those in Jackson County should contact the Jackson County Chapter at 4532 Main Street, Kansas City, telephone LOgan 8346, and others should contact their local chapter in their county, or the state office, at 506 Olive Street, St. Louis 1, telephone CEntral 2951.

Sincerely yours, EDGAR D. DAVIS State Representative

COUNCILOR DISTRICT AND SOCIETY PROCEEDINGS

FIFTH COUNCILOR DISTRICT

W. A. BLOOM, FAYETTE, COUNCILOR Cole County Medical Society

The Cole County Medical Society met at the Mis-

souri Hotel, Jefferson City, July 11 at 6:00 p.m. Thirty physicians were present from Cole, Callaway, Moniteau, Osage, Gasconade, Miller and Morgan counties.

Dr. W. A. Bloom, Fayette, Councilor of the District, spoke on the "Prepayment Plan of Medical and Surgi-

cal Care.

Mr. T. R. O'Brien, St. Louis, discussed the Community Health League and problems in public relations and legislation.

Dr. M. Pinson Neal, Columbia, spoke on "Postwar

Planning."

Discussion followed these presentations. JAMES A. HILL, M. D., Secretary.

SIXTH COUNCILOR DISTRICT

R. W. KENNEDY, MARSHALL, COUNCILOR

Lafayette County Medical Society

The Lafayette County Medical Society met in Lexington, July 25, at 8:00 p. m. Those present were Drs. W. A. Braecklein, W. E. Koppenbrink, L. M. Garner, Higginsville; J. Q. Cope, G. W. Fredendall and B. T. Payne, Lexington; W. E. Martin and R. C. Schooley, Odessa; L. D. Green and T. F. Cook, Richmond; L. J. Schofield and H. H. Tyner, Warrensburg.

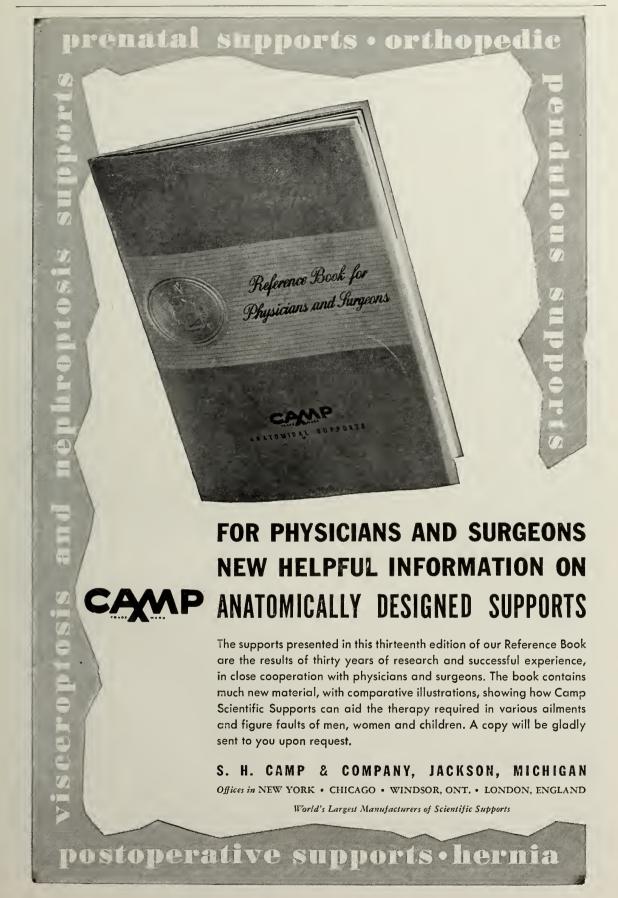
Dr. Harry M. Gilkey, Kansas City, gave an interesting talk on "Diarrhea in Infants."

L. M. GARNER, M. D., Secretary.

BOOK REVIEW

SYNOPSIS OF MATERIA MEDICA, TOXICOLOGY, AND PHARMACOLOGY. For Students and Practitioners of Medicine. By Forrest Ramon Davison, B.A., M.Sc., Ph.D., M.B. Formerly Assistant Professor of Pharmacology in the School of Medicine, University of Arkansas, Little Rock. Medical Department, The Upjohn Co., Kalamazoo, Mich. Third Edition. With 40 Illustra-tions, Including 4 in Color. St. Louis: C. V. Mosby Co. 1944. Price \$6.50.

Of all the volumes of synopses offered by this publisher, this one assuredly gives full measure for the investment. It is well bound, printed on good paper and contains 740 pages of closely packed information, streamlined for students and complete for reference of practitioners. The first appearance was in 1940. This is a complete revision containing practical information on many drugs including sulfonamides, vitamins of the B complex, vitamin K, hormones, certain disinfectants and microbiotic agents. Emphasis is on drugs commonly used in practice, and renews many old acquaintances as still useful friends. It is definitely recommended for the flat top desk. A. B. S.



INDEX TO ADVERTISERS

Aloe, A. S. Company 32 American Meat Institute 21 Barlow-Maney Laboratories Borden Company15Brewing Industry Foundation17Burroughs Wellcome & Company27, 41 Camp, S. H. & Company 23 Canada Dry Ginger Ale, Inc. 12 Cheplin Laboratories, Inc. 40 Ciba Pharmaceutical Products, Inc. 31 Ciba Pharmaceutical Products, Inc.Insert Cook County Graduate School of Medicine...... 20 Denver Chemical Manufacturing Company...... 35 General Electric X-Ray Corporation..... Glenwood Sanatorium Gradwohl School of Laboratory Technique...... 34 Hanger, J. E., Inc. 36 Holland-Rantos Company Lilly, Eli and Company 16 Lov-E Brassiere Company 44 Major Clinic Association 5 Mead Johnson & Company 46 Medical Protective Company 34 Milwaukee Sanitarium Miscellaneous Announcements 36 Mosby, C. V., Company 30 Mullen Ambulance Company 22 Norbury Sanatorium 32 Philip Morris & Company 29 Physicians Casualty Association 20 Producers Creamery Company 33 Ralph Sanitarium 34 Schenley Laboratories, Inc. 42 Schieffelin & Company 18 Schmid, Julius, Inc. 14 Searle, G. D. & Company 13 S.M.A. Corporation 2 Smith-Dorsey Company 12 Smith, Kline & French Laboratories................. 38 Upjohn Company 3 Worrell, Dorothy 36

F. E. Young & Company...... 43

BOOKS RECEIVED

MINOR SURGERY. Edited by Humphrey Rolleston and Alan Moncrieff. New York: Philosophical Library. 1944.

Council on Pharmacy and Chemistry. Annual Reprint of the Report of the Council on Pharmacy and Chemistry of the American Medical Association for 1943 with the Comments That Have Appeared in *The Journal*. Chicago: American Medical Association. 1944.

PRINCIPLES AND PRACTICES OF INHALATIONAL THERAPY. By Alvan L. Barach, M.D., Associate Professor of Clinical Medicine, Columbia College of Physicians and Surgeons; Assistant Attending Physician, Presbyterian Hospital. 59 Illustrations. Philadelphia: J. B. Lippincott Company. 1944. Price \$4.00.

Analysis and Interpretation of Symptoms, The. Edited by Cyril M. MacBryde, M.D.; Paul B. Beeson, M.D.; Richard H. Freyberg, M.D.; Edwin F. Gildea, M.D.; Sara M. Jordan, M.D.; Sidney A. Portis, M.D.; Leon Schiff, Ph.D., M.D.; David M. Skilling, M.D.; John R. Smith, M.D.; Harold G. Wolff, M.D. Philadelphia: J. B. Lippincott Company. 1944.

Cataract and Anomalies of the Lens. Growth, Structure, Composition, Metabolism, Disorders and Treatment of the Crystalline Lens. By John G. Bellows, M.D., Ph.D.; Assistant Professor of Ophthalmology, Northwestern University Medical School, Chicago. With 208 Text Illustrations and 4 Color Plates. St. Louis: C. V. Mosby Company. 1944. Price \$12.00.

TREATMENT OF PEPTIC ULCER, THE. Based Upon Ten Years' Experience at the New York Hospital. By George J. Heuer, M.D., Professor of Surgery of Cornell University Medical College and Surgeon-in-Chief of the New York Hospital. Assisted by Cranston Holman, M.D., Assistant Professor of Clinical Surgery, Cornell University Medical College and William A. Cooper, M.D., Assistant Professor of Clinical Surgery, Cornell University Medical College. Philadelphia: J. P. Lippincott Company. Price \$3.00.

Technique in Trauma. Planned Timing in the Treatment of Wounds Including Burns. From The Montreal General Hospital and McGill University. By Fraser B. Gurd, M.D., C.M., and Douglas Ackman, M.D., C.M. In Collaboration With, John W. Gerrie, M.D., C.M.; Joseph E. Pritchard, M.D.; Edward S. Mills, M.D., C.M.; Frederick Smith, M.D. Preface by John S. Lockwood, M.D. University of Pennsylvania; With Commentary by Ralph R. Fitzgerald, M.D., C.M., McGill University. Philadelphia: J. B. Lippincott and Company. 1944. Price \$2.00.

AMERICAN ILLUSTRATED MEDICAL DICTIONARY. A Complete Dictionary of the Terms used in Medicine, Surgery, Dentistry, Pharmacy, Chemistry, Nursing, Veterinary Science, Biology, Medical Biography, etc., With the Pronunciation, Derivation, and Definition. By W. A. Newman Dorland, A.M., M.D., F.A.C.S. Lieut-Colonel, M.R.C., U. S. Army, Member of the Committee on Nomenclature and Classification of Diseases of the American Medical Association; Editor of "American Pocket Medical Dictionary." Twentieth Edition, Revised and Enlarged with 885 Illustrations, Including 240 Portraits. With the Collaboration of E. C. L. Miller, M.D., Medical College of Virginia. Philadelphia: W. B. Saunders Co. 1944. Price, Plain \$7.00, Thumb-Indexed, \$7.50.

THE JOURNAL

OF THE

Missouri State Medical Association

The Official Organ of the State Association and Affiliated County Societies
Issued Monthly under direction of the Publication Committee

COPYRIGHTED, 1944, BY MISSOURI STATE MEDICAL ASSOCIATION. ALL RIGHTS RESERVED.

VOLUME 41

OCTOBER, 1944

NUMBER 10

RALPH L. THOMPSON, M.D., Editor HELEN PENN, Assistant Editor 623 Missouri Bldg., St. Louis, Mo. Telephone, Newstead 0404-05 Publication (RALPH L. THOMPSON, M.D., Chairman Committee ROBERT MUELLER, M.D. J. WILLIAM THOMPSON, M.D.

CARDIAC DISORDERS IN AN ARMY GENERAL HOSPITAL

COL. JOHN T. KING, M.C. WASHINGTON, D. C.

Since the majority here are either working in the Army or on induction Boards, probably some in a consulting capacity, I thought I might set forth some figures on the types of disorders that one sees in a general hospital, specifically, the Walter Reed General Hospital at the Army Medical Center. I have taken these figures, although they are limited in number, rather than trying to go into large statistical analyses from the Surgeon General's office. I would rather do this because I know what I am talking about and can tell about the patients in this service; I do not know what I am talking about when I handle large statistical analyses. The interpretation of large numbers of figures does not always mean accuracy because men rejected and discharged for disability merely represent the types of disorders that the Army is willing to get along without at any given time. The discharge for cardiac disability may be very large in one year and in another year be much less. At the moment I think there are relatively few men being discharged for cardiac findings.

At the Walter Reed Hospital the patient personnel is drawn from certain station hospitals in Maryland, Virginia and the District of Columbia and also from certain local camps and officers and enlisted personnel stationed in and around Washington itself. Also, a considerable number of patients are drawn from other general hospitals and, finally, large numbers from abroad. So when these are all put together one has a fairly accurate cross-section of the disorders as they occur in the Army as a whole.

One of the problems that agitates the medical service of the Army at the moment is that of rheumatic fever. It is now not only a national problem, but it has become an acute problem in certain areas

in the Army. Recently Lt. Col. Hench, who in normal times is at the Mayo Clinic, worked out some figures in Washington and told me that 59 per cent of all cases of rheumatic fever in the Army in continental United States are derived from the Seventh Service Command, the Denver Service Command area, whereas about one fourth of all cases have been reported from the State of Colorado alone. I do not know just what this means, but it is known there is much rheumatic fever in that section and the matter is now under investigation; however, one finds that rheumatic fever has not been a very serious problem in the eastern part of the country, not even in the patients derived from the expeditionary forces.

I will present the types of cardiac disorders that have prevailed in the enlisted men's ward for a period of one year. At the head of the list are fifty cases of suspected heart disease who were sent to the hospital for study and observation. Fifty of these men, after careful consideration, were declared free of heart disease and returned to duty.

There were forty-five cases of rheumatic fever in this ward for enlisted men. For the most part these patients are not very violent cases of inflammatory rheumatism; that is to say, the febrile reaction is not as a rule very violent, as in the North, for example, in New York and New England and in the Great Lakes section. It has been my observation for years in Baltimore, and it is true in Washington, that the reaction of the joints, the febrile reaction, is not quite so violent as in certain other sections. There were twenty-eight patients with persistent arterial hypertension. It is customary in army centers not to make a diagnosis of hypertension until the reading has been taken on three consecutive days, morning and afternoon, and the examiner is convinced it is not due to some psychogenic cause. Why there were twenty-eight patients in that ward with persistent arterial hypertension that were not discovered at induction centers, I do not know, but the hospital as a rule tries to lean over backward in returning men with hypertension, and as a matter of fact probably most of these men were kept on limited duty. But this

Presented at the 87th Annual Session of the Missouri State Medical Association, Kansas City, April 23, 24, 25, 1944.

represents the irreducible minimum — those in whom one was forced to make a diagnosis of hypertension.

In the next group a diagnosis of psychoneurosis with cardiac complaints was made without the establishment of any cardiac abnormality. I want to call your attention particularly to this classification because it was worked out, not at my suggestion, but by the chief of the cardiovascular section, Major Robb, and his assistant. Fortunately, it agrees exactly with my ideas, because I think there will have to be a classification of this sort—patients who have a cardiac complaint but do not have organic disease and, yet, on the other hand, do not have a full-blown picture of neurocirculatory asthenia. Patients of this sort sometimes have been told they have heart trouble and they have the condition so firmly in their minds that it is very difficult to disabuse them of this notion. So, it seems to me, the pendulum has swung a little too far in the direction of calling all cases of neurocirculatory asthenia purely functional or psychogenic; at the same time there is a considerable number of patients in whom one is forced to make the diagnosis of psychoneurosis to the exclusion of all others. However, I want to insist that such a diagnosis is made on positive grounds and not by elimination. I do not feel that it is fair to anybody, including the patient, to make such a diagnosis simply because no organic lesion is found. There are all varieties of psychoneurosis included in this group,

There were seven cases of arteriosclerosis with arterial hypertension, six of arteriosclerosis with myocardial degeneration, seventeen of arteriosclerosis with myocardial insufficiency, and eleven cases of coronary occlusion. All of these cases are to be lumped together under the general head of degenerative disease of the heart. At the Walter Reed Hospital, in the enlisted men's ward, there are a certain number of retired enlisted men who happen to live in the vicinity of Washington and are privileged to come to that hospital. They contribute to this group of degenerative cardiac disorders.

Then there is neurocirculatory asthenia, and that diagnosis has not been made in any of the cases that have come to this large general hospital. That is a very significant thing because neurocirculatory asthenia, or the irritable heart of soldiers, as it was called in the last war, was a very substantial problem. One can theorize, of course, as to how it happens that neurocirculatory asthenia was such a problem to all armies in the last war and is such an almost negligible problem in this war. My own theory is that we were forewarned by the occurrence of the condition in the last war and that induction boards were alert to keep these men from entering the service. It seems very peculiar that neurocirculatory asthenia which in my experience is very uncommon in civilian life, could have been so carefully and thoroughly weeded out

at the induction centers. Of course, a good many of these men were picked up during the first six months of their training and never got to the general hospitals at all. They were sent to training camps for basic courses, developed symptoms of neurocirculatory asthenia, and were sent home. I suppose that this accounts for a majority of the rejected cases. In the last war, of course, the men often went overseas within six months; at any rate, the preparation period was so much shorter that many of them got overseas without proper training and developed neurocirculatory asthenia. One can only generalize about what the attitude of the induction boards has been, but I know that in Maryland there was considerable misapprehension about what neurocirculatory asthenia actually is. I found before I entered the Army that very often those men who were found to have tachycardia and a little elevation of blood pressure were considered to have neurocirculatory asthenia. I think that was due to the fact that in peacetime the fullblown condition was so uncommon that probably most examiners did not know what the picture actually looks like. Neurocirculatory asthenia is, to a very considerable degree, a physiologic disturbance—there is cyanosis, sweating, fatigability, breathlessness on exertion, overactivity of the heart, tachycardia on the slightest exertion, with subsidence to within normal limits on rest, and without any demonstrable organic basis until one begins to search. The organic bases that were found in the last war pertaining to neurocirculatory asthenia were: first, these patients had small hearts, smaller than is usual for an adult. Second, they were sensitive to injections of small doses of epinephrine subcutaneously. Third, in an objective test for fatigue they were found to be actually more readily fatigued than other soldiers. So this objective evidence as well as subjective symptomatology gives a pretty definite picture. But in civilian life a man who is a potential case of neurocirculatory asthenia can take care of himself and get along fairly well. Eventually, when these men complete their army service, unless there is some subconscious motive of remuneration, they go home and gradually improve. I suspect, although this I cannot prove, that the Army has lost some good men who were filtered out because they were considered cases of neurocirculatory asthenia by the induction boards when, actually, they showed merely nervous tachycardia and nervous hypertension.

Then there is valvular heart disease. There were seven cases of mitral stenosis, five of aortic insufficiency, and three of combined mitral stenosis and insufficiency. Three showed mitral disease and also aortic insufficiency. This is not a large group for a general hospital, and it is a pretty good showing for the induction boards. Now the question is: why do any of these patients get in? I am sure that one reason that patients with mitral stenosis

are inducted into the Army is that they are not examined in recumbent posture. Practically all patients one sees in the Army show no diastolic murmur in the upright posture, but when one has them lie down and turn on the left side, they show the diastolic rumble of mitral stenosis. So unless the examiner is willing to examine patients as he really should, that is, with the patient in both postures, the Army may expect to induct a certain number of men with mitral stenosis.

So far as a ortic insufficiency is concerned (it does not show in this small group), it is the lesion that is found in the Army more often than any other. Not long ago a report came from the Air Corps that a re-examination of Air Corps personnel showed that among their patients who were found to have organic heart disease, aortic insufficiency was found in 43 per cent and mitral valve disease in 48 per cent. On comparing these findings with an autopsy series from the Johns Hopkins Hospital I found there was a disproportionally high number of cases of aortic insufficiency. That is exactly similar to what was found in the last war when I was examining troops who went overseas, and again at the time of their demobilization. It was found that aortic insufficiency was outstanding as the valvular lesion that is most often overlooked. Pardee suggested that this might be due to the rather soft quality of the average aortic insufficiency murmur and he was inclined to think it might more easily be overlooked. At any rate, it certainly is. In the general hospital in which I served during the last war I remember forty-four cases of aortic insufficiency among men, most of whom had done full duty; and out of that number only four could be suspected of having syphilitic aortitis. Four had had syphilis; only two had positive serology. In forty of the forty-four, the etiology was rather obscure; the incidence of rheumatic infection was not high, and I think those who have seen many cardiac cases will agree with me that a mild, nonsyphilitic type of pure aortic valve disease is apt to present a considerable obscurity in the matter of etiology. At any rate, that has been my experience. Dr. Jensen spoke last night of the difficulty in distinguishing true aortic cardiac murmurs from functional cardiac murmurs, and I agree with him thoroughly. One never feels quite satisfied with his decision. I have been fooled both ways. I have made a diagnosis of functional murmur and then the patient subsequently died of endocarditis, and vice versa. But one cannot be right all the time, and I do think there are general groups of insignificant murmurs; I also find that men with considerable experience and background do not always give sufficient credit to certain rules pertaining to those murmurs. There is a so-called postural murmur at the apex that is very common. It is usually a relatively soft murmur which disappears upon the patient's taking the upright posture. That may be considered as a postural murmur. Murmurs around the pulmonic area, unless there is a congenital

anomaly, also can be regarded, in general, as functional. Then there is a large group of cardiorespiratory murmurs which are difficult to deal with. These murmurs may occur anywhere about the heart, and they are often heard at the back at the angle of the left scapula. They are formed by the pressure of the moving heart against the lung and simulate cardiac murmurs in the lung. The cardiorespiratory murmur is usually loud when the patient is standing and may disappear when he lies down, probably due to the fact that when a man lies down his heart moves to the back and the pressure against the lung is released. I remember a dramatic case in the last war. The soldier had a murmur that could be heard over his entire chest, and it never occurred to us that it could be anything but an organic mitral insufficiency murmur. However, he was examined one day in the recumbent posture, as he was ill with influenza; the murmur had disappeared. This is characteristic of the cardiorespiratory murmur and, in my experience, one cannot place any reliance on the intensity of that murmur. It may be loud or soft. I think one can be fooled if one pays too much attention to the intensity of the murmur, but the behavior of the murmur in general with change of posture or with respiration frequently will allow one to pigeonhole a functional murmur very satisfactorily.

Another test for certain cardiorespiratory murmurs is that they may be heard for only two or three heart beats during inspiration and during expiration they are gone. That type is always cardiorespiratory. Frequently, if one has a patient take a deep breath and hold it the cardiorespiratory murmur in any area may disappear. I am rather ashamed to admit it, but one of the junior members of my staff at the Hospital pointed out to me a fact of which I was entirely unawarebearing on the effect of respiration on cardiorespiratory murmurs. That is that while the murmur will often disappear at the end of inspiration if the breath is held, in other cases the murmur fades away gradually over three or four cardiac cycles when the breath is held. Why that should be I do not know, but it is a fact. The cardiorespiratory murmurs usually disappear either immediately or shortly after the breath is held at full inspiration. If the murmur refuses to follow this rule one may find that it varies in intensity at certain phases of respiration. As I said before, I must agree with Dr. Jensen, that one never feels satisfied. However, although one may find exceptions to the rules, I have found the rules are helpful both in the varieties of murmurs one finds in war service and also in civilian practice.

Since the first of this year there have been four cases of coarctation of the aorta.

I have separated the officer patients from enlisted patients because they fall into different groups due to the fact that officers constitute older personnel. Among the officer patients there was a

preponderance of hypertensive, coronary artery and degenerative cardiac disorders. That, of course, is to be expected in an older age group.

It might be interesting to point out that about one out of six of 1,260 patients who entered the officers' ward in a year was there for some cardio-vascular disorder. There were six cases of aortic valvular disease, two cases diagnosed as organic mitral disease, and four cases in which there was combined aortic and mitral valvular disease. As one might expect in an older group, there were fifty-two cases of arterial hypertension; except in certain groups of officers, which includes the Medical Corps, the presence of hypertension is no longer compatible with duty because line officers today are expected to be fit for full duty.

There were fifty-eight cases of coronary occlusion. It would take me several years to see so many in civilian practice. The chief difference between these cases and those in civilian practice is that these are younger individuals. On analyzing the first half of these cases, or twenty-nine, it was found that twenty-eight occurred before the age of 59. Among my civilian patients I find that 59 and a fraction years is the average age for occurrence of coronary occlusion, but it is only the very exceptional Army officer who has coronary occlusion at 59 and over. In the first place, there are few men in the Army more than 59; Army officers are retired at about 60 to 64 years. It was found that one of these officer patients had coronary occlusion between 20 and 29, four between 30 and 39, eleven between 40 and 49. Figures also show that, whereas the younger individual is apt to have a very violent attack as regards pain and fever, he recovers from his attack better than the older man. In the older man the primary symptoms are likely to be milder, but the prognosis is worse.

The story of a frank rheumatic attack, or perhaps repeated sinus infections or tonsillitis, is so common in the background of many cases of coronary occlusion, particularly in younger persons, that I cannot escape the feeling that many have their basis in arteritis set up by some sort of infectious process, perhaps years before the occlusion.

Finally, I think it ought to be clear to even the casual observer, that as regards organic valvular heart disease, or functional heart disease (neurocirculatory asthenia) the induction boards and basic training camps have done a good job. Cardiovascular disorders among officer patients have been observed largely in those decades of life when degenerative conditions may be expected. Prevention of such cases is difficult or impossible in most instances.

Army Medical Center.

Effective treatment with penicillin of subacute bacterial endocarditis is reported in *The Journal of the American Medical Association* for September 23 by B. C. Collins, M.D., Memphis, Tenn. Within three days after treatment was started the temperature had dropped to normal.

SPECIAL PROBLEMS OF POOR SURGICAL RISKS, ESPECIALLY AGE

WM. B. KOUNTZ, M.D.

The subject of "Special Problems of Poor Surgical Risks, Especially Age" could be handled in two ways. One could enumerate and discuss the different types of poor surgical risks. This would lead to considerable duplication of discussion and overlapping of thoughts. I have chosen to consider the general problem that is met in factors of debilitation and age. Individuals with underlying disease such as nutritional, cardiovascular, toxic, ageing, are the ones who usually present problems. It is, of course, impossible in the brief period of time for me to discuss all of the aspects of special problems. I shall pay particular attention to the problem of ageing.

Many physicians have considered that the principles of surgery should be altered with the age of the patient. This perhaps is emphasized more in the field of pediatric surgery than in any other field of medical literature. It is needless to say that the primary surgical procedures are similar, or identical, in all the various age groups. However, the application of them to the problem of the individual patient may require different considerations because of the patient's state of health.

Since I am to talk about the elderly patient, I should like to explain what I mean by the terms of old, or aged. Biologists² have presented charts in which they diagramatically have outlined man's existence. That there is a period of growth, a period of maturity and a period of decline of all living organisms is well recognized. In man one usually measures these periods or phases in terms of years, and for the first two phases it is fairly accurate. However, the phase of decline, or degeneration, can not always be measured in terms of years. Some begin degeneration of all tissues early (progeria is an example); while others may begin it in one or more organs. This latter change, when the organ is a vital one, may result in rapid, but subtle decrease in body function at an early age.3 Therefore, when I speak of the term "ageing," I imply decline or degeneration of the body rather than chronological age. Some very old patients may have relatively little degeneration of their tissues.

Degenerative processes may not be due only to physiologic factors. Partial impairment of function of any viscera may occur due to a pre-existing systemic disease, inherited tendencies, or to excessive intake of alcohol, smoking and overeating. It is possible also that prolonged exposure to certain noxious agents in industry may cause early degenerative changes.

In a discussion of surgery in the aged one must, therefore, keep in mind that one is not necessarily talking about the centenarian, but about younger individuals as well who are functionally old.

Presented at the 87th Annual Session of the Missouri State Medical Association, Kansas City, April 23, 24, 25, 1944.

Coming now to my point of study, it is readily seen that one must not generalize on the problems of the individual elderly patient, because of the extreme variability of his clinical and anatomic state. Any attempt to evaluate individuals past middle life emphasizes the importance of studying the individual with care before a type of procedure can be started.

In the preoperative case such factors as the nutritional balance of the patient must be considered.4,5 In the elderly or debilitated individual it should be recognized that his stores of essential food substances are low and plans should be laid throughout the preoperative and postoperative state to maintain as nearly as possible a high essential food intake. Whipple⁶ has called attention to the necessity of maintaining a good protein balance and normal fluid electrolyte intake. Adequate blood protein and adequate protein maintenance are not only necessary to provide adequate cellular nutrition, but to prevent loss of fluid into the tissue. The vitamins are especially valuable in wound healing. Vitamin C7 is the one considered of greatest importance since ascorbic acid is required in the production and maintenance of the intercellular substance,8,9 especially in the capillary bed. Vitamin K⁶ may be an important factor in hemorrhage control.

The present day studies of cardiac function make it possible for the surgeon to determine ahead, and to correct to some extent, for cardiac incompetency. With the present knowledge of blood transfusion and availability of blood there is no excuse for operating upon markedly anemic patients. Hemoglobin and blood plasma determinations should be used in study of the depleted patient.

It is important that all physicians advising surgery in the middle age class, or beyond, to remember that there is such a thing as reserve in tissue function. The kidney may be used as an example. If one removes a damaged kidney in an individual with hypertension, the result may be to reduce the total renal function below the functioning threshold and cause the occurrence of grave renal insufficiency. It is extremely important for the surgeon to measure and estimate and consider this factor before an operation on these organs.

The type of anesthesia and postoperative care may vary to a considerable degree depending on the physical state of the individual. These will be weighed briefly.

The choice of anesthesia in the debilitated individual depends on a number of considerations. ¹⁰ As a preanesthetic drug, morphine and atropine have been advised. About the anesthetic itself, Dr. Sherwin may be able to make some definite statements—the essential point to remember is that the drug must not produce visceral damage. One should remember that in dealing with debilitated and aged individuals they usually are sedated more easily and more readily overdosed. One of the absolute essentials is the maintenance of a proper oxygen supply throughout. These individuals have neither

physical or chemical reserve to permit depletion of oxygen. Care should be taken, when a general anesthesia is used, to maintain patent airways; and care should be taken, when transporting the unconscious patient from the operating room, to prevent inhalation of vomitus and mucus by keeping the patient on his side.

From the standpoint of the actual surgery itself, little can be said except to remember that the tissues of the elderly patient are more tender and friable than younger ones, and a slight tug may cause a serious tear. The loss of a small amount of blood in an elderly individual is more serious than in younger ones. This is because of the lack of ability of the vasomotor system to constrict and the heart to increase in rate and output.

A consideration of postoperative care of patients beyond middle life is important. One of the factors is that of cardiovascular response. It is realized that the inability of the vessels in this age group to respond rapidly to changing conditions and blood volume may create a major hazard in an extensive operation. This principle must be considered from a different standpoint than of the younger individual. The instantaneous manner in which dilatation and constriction of the vascular system occur in normal individuals provides an effective protection of great importance when rapid changes in size of the vascular tree becomes necessary. Fluids injected into the individual, whether it be sodium chloride or blood, may cause no burden on the normal cardiovascular system; whereas, in the elderly individuals small amounts may produce cardiovascular failure because this system is no longer easily distensible. Likewise, the loss of a small amount of blood plasma may not be tolerated by the degenerative patient because of the relative inability of his vascular system to decrease or constrict. In the younger individual such changes as volume of the circulating blood may be adjusted immediately by constriction or dilitation of the vascular tree, or by variation in the heart output or rate.

Arterial tension is another factor for consideration. As I have mentioned, it is important to choose an anesthetic which will not vary the blood pressure a great deal. Even though an individual may have hypertension, causing the pressure to drop may upset the function of the tissues or, not infrequently, may cause a thrombosis of the small blood vessels. Such things as change in cardiac rate, or an abnormal rhythm which arise at the time or following a surgical operation, may be of extreme significance, whereas, it will have no importance in the younger age group.¹¹

Bed rest after operative procedures tends to lower the blood pressure, decrease the cardiac output and favor thrombosis. Cardiac infarctions have been known to occur following operation in individuals in the period of decline. There are two points to remember about it: one is that it may occur after the operation, but more likely occurs by permitting the individual to get out of bed too rapidly if he has

been bedridden for a long period. The infarction following surgery is believed to be due to a drop in blood pressure and slowing of the circulation, thereby, favoring clotting of the blood in the vessel.¹²

Thrombosis or embolism may occur in individuals who have diseased blood vessels. Cerebral thrombosis is particularly likely.13, 14 It should be remembered that any postoperative thrombosis or embolism might be prevented by avoiding conditions which produce circulatory stasis, such as change in blood pressure, tight bandages, keeping the body in one position or prolonged dehydration which increases blood viscosity.

Even more than in the younger patient, attention should be paid to the plasma chlorides, particularly in conditions of vomiting and diarrhea, since they may be low. The surgeon should follow the "clinical rule"15 in restoring the normal body electrolytes. On the other hand, edema may occur from too much salt solution, particularly in conditions of debilitation and nephritis. Blood chlorides are no index to

The respiratory system of the aged is particularly affected during the postoperative period. Pneumonia due to hyperstasis and atelactasis is not infrequent. The type of patient chiefly prone to infection is the one who has a distorted thoracic cage due to bad posture or to changes in the intervertebral disks of the thoracic spine. This latter condition which is quite common produces distension of the chest and low diaphragms which, in turn, make ineffective such mechanisms as drainage of the lungs and cough.17 Pulmonary atelactasis occurs and is frequently the result of a thick tenacious mucus which the patient is unable to raise because of his reduced muscle power associated with deformity of his chest. Prevention of pulmonary vascular stasis by turning the patient and keeping him bedridden as short a time as possible is important.

From the standpoint of the intestinal tract, age itself does not greatly increase the hazards of operation. Individuals should not be denied benefit of hospitalization or of surgery simply because they are old. They should receive the same restrictions and should be managed exactly as if they were younger, bearing in mind more meticulous preoperative care is necessary and the postoperative period should be such as not to overflood the circulatory system.16 In the aged, strong purgatives are dangerous and such things as simple enemas and mild laxatives are safer.

In summary, one may say that the aged patient is subject to the same complications as a patient in normal health, but to a greater degree. Such individuals require more exacting preoperative study; the use of anesthetic agents which are administered with minimal risks to viscera changes; greater gentleness in handling tissues which are injured easily by minor trauma; strict postoperative procedure which will not overload a more rigid vascular system and one which will not result in dehydration. If such protective measures are applied carefully, the risk of surgery is not as great as it usually is believed to be.

415 Lister Building

BIBLIOGRAPHY

- 1. Abt, I. A.: Pediatrics, Philadelphia, W. B. Saunders, 1923-1926.
- Steiglitz, Edward J.: Geriatric Medicine, Philadelphia,
 W. B. Saunders, 1943, p. 1.
 Cowdry, E. V.: Problems of Ageing, ed. 2, Baltimore,

- 3. Cowdry, E. V.: Problems of Ageing, ed. 2, Baltimore, Williams and Wilkins, 1942.
 4. Penberthy, G. C.; Irvin, J. L., and Tennery, R. M.: Fluid, Salt, and Nutritional Balance in Patients With Intestinal Suction Drainage, Tr. Am. S. A. 58:48, 1940.
 5. Ravdin, I. S.: Hypoproteinemia and Its Relation to Surgical Problems, Tr. Am. S. A. 58:94, 1940.
 6. Whipple, Allen O.: The Critical Latent or Lag Period in the Healing of Wounds, Tr. Am. S. A. 58:1, 1940.
 7. Hojer, J. A.: Acta Paediat. 3, Supp. 8, 1924.
 8. Lanman, T. H., and Ingalls, F. H.: Ann. Surg. 105:616, 1937.
- 1937

- 1937.

 9. Taffel, M., and Harvey, S. C.: Proc. Soc. Exper. Biol. & Med. 38:515, 1938.

 10. Blaiock, Alfred: Principles of Surgical Care, Shock, and Other Problems, St. Louis, C. V. Mosby, 1940.

 11. Ravdin, I. S.: Principles of Surgery as Applied to the Aged, Stieglitz's Geriatric Medicine, 1943, p. 142.

 12. Mason, Robert L.: Preoperative and Postoperative Treatment, Philadelphia, W. B. Saunders, 1937.

 13. Behrend, Albert, and Riggs, Helena A.: Cerebral Complications Following Surgical Operation, Am. J. Surg. 53:296, 1941.
- plications Following Surgical Operation, Am. J. Surg. 35, 256, 1941.

 14. Mayo, Charles W.: Postoperative and Mental and Physical Changes and Their Prognostic Significance, Surg. Clin. N. America 17:1027, 1937.

 15. Maddock, W. G., and Coller, F. A.: Sodium Chloride Metabolism of Surgical Patients, Tr. Am. S. A. 58:38, 1940.

 16. Niles, W. L., and Martin, K. A.: Diseases of the Intestines, Stieglitz's Geriatric Medicine, 1943, p. 593.

 17. Kountz, Wm. B., and Alexander, H. L.: Emphysema, Medicine. 13:251, 1934.

GASTRIC AND DUODENAL LESIONS

DELON A. WILLIAMS, M.D.

KANSAS CITY, MO.

In discussing the seriousness of ulcer and its complications with patients and explaining to them the necessity for accurate compliance with the ulcer regime as outlined, I have often made the remark "I wish you could see just one case with me. There would then be no further need to urge you to follow my instructions. You would not only be perfectly willing but anxious to comply with the regulations." Ulcers are not only annoying, they are dangerous and often fatal. There are two grave complications of ulcer, perforation and hemorrhage. While only about 15 per cent ever bleed or perforate, no one is wise enough to know in whom the complication will occur, and, as I explain later, to the individual to which it happens it might just as well be 100 per cent so far as he is concerned. Many times I feel that physicians are far too lax in requiring patients to follow an accurate regime, and in allowing them to ease their distress with soda or some other alkali. This tends to give the impression the physician does not consider the ulcer very serious, and may lead to untoward complications and eventually cost the life of the patient.

I also feel strongly about this question of prevention. I am confident much more could be accomplished toward the prophylaxis of ulcer if patients were definitely impressed with the impera-

Presented in a panel on "Gastroduodenal Lesions" at the 87th Annual Session of the Missouri State Medical Association, Kansas City, April 23, 24, 25, 1944.

tiveness of adjusting their habits prior to the onset of hemorrhage. This regime would include restrictions on smoking, eating, drinking and working. Apparently it is a human attribute not to accept an ulcer as really serious until there have been two or three hemorrhages that threaten fatality, or the patient has had pyloric obstruction or perforation.

Many times the citation of a single case may be sufficient to attain the desired results.

The case I want to present today is that of a man, 51 years of age, who on October 20, 1943, while visiting in Detroit was taken suddenly ill in his hotel bed. The house detective was called and rendered a diagnosis of either inebriation or indigestion. Later the house physician administered a hypodermic. Next morning a specialist suspected a ruptured peptic ulcer. The patient was then taken to the Henry Ford Hospital where he was operated upon and the perforation closed with adequate drainage. The course was stormy; an abscess had to be opened and drained. The patient left the hospital much improved but not well. He arrived in Kansas City on November 27, and for the first week at home felt much improved. He then began having an elevation in temperature each afternoon. He entered Research Hospital on December 11, where a diagnosis of subdiaphragmatic abscess was made. After appropriate presurgical care including blood transfusions and fluids the abscess was opened and drained through a rib resection. A large quantity of foul smelling pus was removed and drains were inserted. The course was again stormy. Irregular temperature, up to 103 F., toxic, secondary anemia and leukocytosis. A second abscess was opened. Sulfa therapy had been of value, it was felt, but not curative. After seven weeks, a million units of penicillin were obtained, 55,000 of which were given the first day and continued in gradually decreasing doses over a period of three weeks. The last few doses were small so the therapy could be prolonged since no more of the drug could be had. Incidentally, Dr. Anderson, when contacted by telephone to request the penicillin, reported that experience in these cases showed a remarkably favorable immediate result, though not curative, and suggested that the abscess probably would recur and require further drainage. This was the experience with this case. After nine days the temperature was normal, drainage from the wound was greatly reduced and the patient was markedly improved. He left the hospital on March 2 but has continued to drain up to the present. On March 28, 1944, the blood findings were improved, but the fluoroscopic examination still revealed a very definite lifting of the right diaphragm as compared to the left. The lung fields were clear. The patient plans on spending several months in Arizona to recuperate.

There are many lessons to be gained from this case. (1) Failure to make a diagnosis of a surgical condition in the abdomen, most likely a ruptured viscus. (2) In these cases immediate surgi-

cal intervention is imperative, the rule being that the mortality rate increases in inverse ratio to the number of hours after six until at twenty-four hours or more the percentage reaches almost one hundred. (3) The hospital sojourn was greatly prolonged, suffering untold, and the expense tremendous, aside from an indefinite period of convalescence. (4) Penicillin is of marked value, but not curative in these cases.

Realizing the dangers of the complications of an ulcer it would seem advisable to treat a simple ulcer itself with the respect it so richly deserves, both in lieu of diagnosis and treatment.

It is true that roentgenograms have made most ulcers easy to recognize but, unfortunately, the problem is not always so simple as the mere taking of a roentgen ray picture. Even in the hands of expert radiologists there are cases in which it is almost impossible to make a correct diagnosis from roentgenologic studies alone. After all, roentgen rays are merely interpretation of shadows, and shadows many times may be misleading. Please do not misunderstand me, the roentgen ray is a most valuable instrument of diagnosis and no competent gastroenterologist will ever consider a case thoroughly studied without its use. Many valuable facts may be learned as to the shape, size and location of an ulcer, as well as the degree of penetration and obstruction to the outlet. Perforation and hemorrhage must be recognized without its use because of their emergency status. It would be fatal to await or even use fluoroscopic studies in most cases.

While truly grateful for the use of roentgen ray studies, it behooves the wise clinician to utilize all the means at his command in the analysis of a case. The old fashioned Ewald, while belittled by many, has its advantages and should not be thrown into the discard. It is known that a small percentage of ulcers occur with a normal or even a hypo-acidity, yet there is a tendency to feel better with the presence of a hyperacidity of from 70 to 80 per cent of free acid when a positive diagnosis has been made. With a suspicious ulcer history an anacidity would certainly rule out a peptic ulcer and turn one's attention to the possibility of a neoplasm or pernicious anemia. Obstruction at the outlet of the stomach would give a large quantity of gastric contents on direct aspiration, and the presence of a high acidity and sarcinae would almost certainly point to ulcer. An absence of free hydrochloric acid and a presence of lactic acid and Oppler Boas bacilli would signify carcinoma. Blood usually is found in carcinoma and may or may not be found in ulcer.

The gastroscope is of definite value in certain borderline cases in which it is almost impossible clinically or radiologically to distinguish between a cancer and an ulcer, or, if the ulcer is undergoing malignant changes. Also its negative findings are of value when organic lesions are suspected. Gastritis, which has been given so much space in medical literature of late, has come into its

own since the advent of the gastroscope but, after all, gastritis seems of minor importance from a medical standpoint.

Additional laboratory tests, including examination of the stools and blood are of definite value.

Physical examination may reveal the presence or absence of a mass in the epigastrium, Virchow's gland, rapid pulse, pallor, anemia, shock and markedly dilated stomach with peristaltic waves going from left to right, or tenderness in the epigastrium.

A well written history, after all, is still the most valuable means of arriving at a correct diagnosis in most cases. A true ulcer history is very characteristic—epigastric distress coming on from one to two hours after eating, relieved by soda, alkalis and by emptying the stomach. There are many ulcers, however, which do not give such a characteristic picture.

Again a typical ulcer history can be misleading as the underlying pathologic condition may be that of an appendicitis or chronic cholecystitis. Cancers may give only a vague history of indigestion or, unfortunately, no symptoms at all until the lesions become obstructive or inoperable.

May I suggest that on approaching a gastroduodenal problem, it might be of value to keep in mind some such scheme for differential diagnosis as I have presented here and that a wise clinician will utilize not only one, but all the means at his command in reaching a diagnosis of gastric lesions.

The complications of ulcer usually are recognized easily, perforation by the advent of sudden severe pain, boardlike rigidity of the abdomen, Hippocratic facies and history of ulcer; hemorrhage, by the vomiting of blood, or the passage of black tarry stools. However, a patient may bleed

profusely and reach a state of shock before there is any vomiting of blood or black stools have been passed. It is very important that these conditions, both perforation and hemorrhage be recognized immediately so that appropriate treatment may be instituted. The treatment of perforation, of course, is surgery, but simple as it sounds remember the case just cited. People are still losing their lives due to the failure of early recognition of perforations. Hemorrhage is not a surgical condition. I make that statement fully realizing it is recommended by many surgeons, and one finds ample examples of it in the literature. The rule has been that after repeated hemorrhages or in a severe hemorrhage occurring in a patient 50 years of age or more, operation may be advisable. In my opinion, one is able to show, even in the severe hemorrhages, an equal or lower mortality rate in these cases treated medically than those treated surgically. Drennan in a personal communication has reported over 700 hemorrhages treated by the Sippy method without a single fatality. Eusterman believes they should all be treated medically and Bockus is of the same opinion. Neither recommends surgery except possibly in a few extreme cases. One of the most striking examples locally is that of the former Jackson County Prosecutor who died at Fort Knox, Ky., following an operation for hemorrhage.

The other complications of ulcer as well as benign tumors are usually surgical. A reasonable reason for suspecting carcinoma at any time is definitely a surgical indication.

Penetrating ulcers on the posterior wall involving the pancreas often will produce intractable pain, not relieved by the ordinary ulcer management but requiring morphine for relief. Drug addiction even may be suspected in these cases.

DIAGNOSIS GASTRIC LESIONS

History	Ulcer	Carcinoma	Benign	Gastritis
	Distress (epigastric) Periodicity Relief by: Food taking Alkalias Vomiting Lavage	Pain No periodicity No relief by: Food taking Alkalias Emptying stomach Loss of weight	Indefinite	Indefinite
Physical Examination	Epigastric tenderness	Mass	Mass possible	Negative
Laboratory Gastric Analysis Stool Blood	Hyperacidity Blood or No anemia	Anacidity Blood or Anemia	Normal Indefinite	Indefinite Indefinite
Roentgen ray	Niche	Defect Irregular filling	Defect Movable	Indefinite
Gastroscopic	Sharp edges grayish center punched out	Elevated reddish bleeding edges fading	Mass pedunculated smooth	Atrophic hypertrophic

Surgical interference may become necessary for relief of the pain and, if so, subtotal gastric re-

section is the operation of choice.

Treatment of the uncomplicated peptic ulcer is now generally recognized to be medical. For many years I have been using the Sippy treatment, the efficacy of which is of definite proven value. The theory of this treatment is based upon the complete neutralization of the free hydrochloric acid of the gastric contents twenty-four hours a day. But regardless of theory, the facts are so far in my experience, there have not been any grave complications, either hemorrhage or perforation, with this type of treatment when accurately carried out. There is no such thing as pain and the ulcers do heal. I would like to emphasize that word accurately again. Any system of therapy, to my opinion. must first be based upon a regular schedule of events which must be accurately adhered to by the patient. This haphazard method of taking medication and feedings has no place in ulcer therapy. I like to compare ulcer and its treatment to diabetes. No one will deny that diabetes requires accuracy in diet and preciseness in medication. Any marked variation from the prescribed schedule may cause serious consequences—even death from diabetic coma. One thinks nothing of advising a diabetic patient to stay on treatment all of his life. In the same way ulcer patients must be taught the seriousness of their disease, that it could be fatal and that to avoid the untoward complications it is absolutely necessary to continue their diet and medication indefinitely. They must all report regularly for tests just like diabetic patients. Much of the success of the treatment depends upon the accuracy with which it is taken.

Following is a copy of the treatment I have used at the office for many years. It has proved highly successful. It is a flexible regime, and by this method the free hydrochloric acid of the gastric juice is completely neutralized and since eliminating so much of the soluble alkalies, there has been no cases of alkalosis. Commercial vitamines have augmented a generous diet which has avoided any tendency toward avitaminosis.

rægme				
8:00 a. m.	Breakfast	2:30 p. m.	Powder #1	
8: 30	Powder #1	3:00	Milk	
9:00	Powder #2	3:30	Powder #2	
9:30	Powder #1	4:00	Milk	
10:00	Milk (3 ozs.)	4:30	Powder #1	
10:30	Powder #3	5:00	Milk	
11:00	Milk	5:30	Powder #3	
11:30	Powder #1	6:00	Supper	
12:00	Lunch	6:30	Powder #1	
12:30	Powder #2	7:00	Powder #2	
1:00	Powder #1	7:30	Powder #1	
1:30	Powder #3	8:00	Powder #1	
2:00	Lunch			

POWDERS

#1 Calcium carbonate, gr. x. Sodium bicarbonate, gr. x.

OMIT FOLLOWING FOODS

Alcoholics	Beer
Barbecue	Cider
Buttermilk	Cabbage
Chili sauce	Cucumbers
Coldslaw	Nuts
Condiments	Olives
Onions	Pickles
Popcorn	Radishes
Sauerkraut	Weiners

806 Professional Bldg.

THE PHYSIOLOGIC MANAGEMENT OF BURNS

VINCENT T. WILLIAMS, M.D.

KANSAS CITY, MO.

The basic philosophy which must be adopted in the rational approach to the management of burns lies in a comprehensive definition of "burn" and all the implications thereto. A burn may be defined as "a wound with a propensity to weep." Solely because a burn is incurred usually in a sensational manner should not vitiate our thinking of its management. The treatment of the local and systemic effects of a burn should be carried out simultaneously in a planned, integrated manner.

If one were to reduce the local treatment of a burn to the simplest quotient, one might adopt this succinct aphorism: "convert a dirty wound into a clean wound and keep it clean." This involves no new approach in traumatic surgery. The highly successful and widely exploited Trueta-Orr management of compound fractures is not a new principle. These authors are given credit quite correctly for emphasizing the management of compound fractures, but the basic concepts were utilized by too few surgeons for many years. Similarly, the conversion of a burn-wound from a contaminated state to a clean condition and maintaining this status has been appreciated by some few for a considerable period of time.

To convert any contaminated wound into a clean wound should be common knowledge to all traumatic surgeons of experience and even to medical students in their third and fourth years. This technic involves the removal of dirt, devitalized tissue or any other nidus suitable for bacterial growth. To do this properly, operating room technic on the part of the operator and assistants should be invoked. There should be adequate lavage with sterile water or sterile saline with the use of cotton pledgets and green soap; there should be liberal application of benzene or waste ether if needed and the use of sterile scissors or the scalpel may be indicated; the main desideratum is surgical cleanliness.

The use of multitudinous and unnecessarily complex formulae for local application merely represents the drug salesmen's phantasmagoria. The use of red, yellow, green, violet, purple, brown and

^{#2} Calcined magnesia, gr. x. Sodium bicarbonate, gr. x.

^{#3} Calcium carbonate, grs. xxx.

Presented at the 87th Annual Session of the Missouri State Medical Association, Kansas City, April 23, 24, 25, 1944.

other tinctorial, rainbow-hued antiseptics is chromatic surgery, not traumatic surgery.

Since a burn is defined as a wound with a propensity to weep, it is well to adopt some measure which will minimize this tendency and the best agency is pressure. The vesicles which are formed and the fluid which is secreted on the raw surfaces may be minimized or prevented with a small amount of pressure. Not only does this prevent the weeping, but this same pressure-dressing tends to immobilize the injured part, which is of utmost importance in the management of any injury.

My personal preference in local applications is the use of a sulfathiazole ointment which is bacteriostatic, readily applied and easily removed. This ointment may be impregnated in gauze, ready for emergency use. If the wound is surgically clean the sulfathiazole ointment gause is applied over the wound, several thicknesses of sterile sheet-wadding or sterile mechanic's waste is superimposed and the whole area is wrapped with Ace elastic bandages. This technic permits a sustained, elastic pressure on the wound without embarrassing the circulation and provides semirigid immobilization. Absorption of the sulfathiazole drugs in the ointment-base form is never great enough to produce intoxication, as is sometimes true with water soluble preparations.

While this (the more dramatic phase of the burn management) is being carried out, the disturbed physiology of the body as a whole, either present or imminent, may be treated.

- 1. Pain is relieved with appropriate medication.
- 2. The fluid economy is balanced with various substances with a relative efficacy in the order named: plasma, blood, acacia or electrolytic solutions.
 - 3. Oxygen inhalations.
 - 4. Warmth, without overheating.
 - 5. Adrenal cortex extract.

These agencies all may be administered during the treatment of the local wound and will, to a large degree, disrupt the vicious cycle of those four or five factors involved in shock: fluid loss, hemoconcentration, diminution of cardiac function, anoxemia, peripheral vascular constriction and collapse and capillary endothelial permeability. The earlier these abnormal physiologic changes are treated or prevented, the more likely is a successful outcome. Once this cycle of changes is initiated the less likely may catastrophe be averted.

Assuming that the treatment for impending or actual shock is successful, phase I in the management of any serious burn is over. This period lasts about seventy-two hours. If the surgeon has been 100 per cent efficient in his conversion of a contaminated wound into a surgically clean wound, phase II should be no more an obstacle than a clean goiter, appendix or hernia incision. Phase III in the management of a burn (the reparative phase) consists in early plastic procedures. This covers the wound with the normal, natural dressing: skin. This early skin grafting prevents contractures;

this early repair prevents the protracted, wasting, debilitating seepage from these wounds which can end only with secondary anemia, hypoproteinemia and the other evidences of general malaise due to attrition. It should be in the mind of the surgeon when he sees a badly burned patient that with vigorous management of phase I, that with meticulous care of phase II, that phase III should follow in a matter of just a few weeks.

It should be a matter of justifiable pride to all Americans that many of the cardinal steps in the present understanding of burn management has been the result of research and work done by Americans. Whether in the understanding of shock or in our present enlightened attitude in the local treatment of burn itself, American physicians have pioneered. In the management of burns as in other serious conditions which confront physicians, the ultimate truth is usually simple. Such is true in the physiologic management of burns.

736 Argyle Building.

CASE REPORTS OF BARNES HOSPITAL

CLINICAL AND POSTMORTEM RECORDS USED IN WEEKLY
CLINICOPATHOLOGIC CONFERENCES AT BARNES
HOSPITAL, ST. LOUIS

W. BARRY WOOD, JR., M. D., and ROBERT A. MOORE, M. D., Editors

CASE 53

PRESENTATION OF CASE

The patient was a 76 year old Negro man who was admitted to the hospital on May 26, 1944, and died one month later.

Chief Complaint.—Intermittent diarrhea of three years' duration and abdominal pains for six weeks.

Family History.—Noncontributory.

Past History.—Patient's general health had always been excellent. He had had measles, mumps, chicken-pox and whooping cough in childhood, malaria in early youth and pneumonia one year ago. Thirty-seven years ago, the patient injured his right eye and since that time has had no vision on the right. For several years, the patient had noticed swelling of his feet at night, but it was always gone in the morning. He had had nocturia for the last ten years. The patient gave no history of syphilis but stated that he had had gonorrhea in his early youth.

Personal History.—The patient was born in Tennessee but had lived in St. Louis most of his life. He denied the use of alcohol and apparently was taking an adequate diet.

Present Illness.—Three years before admission the patient had an attack of diarrhea which started suddenly and persisted off and on for approximately six months. During this time he had as many as ten loose, watery stools a day without abdominal pain or tenesmus. No mucus, pus or blood was ever noted in the stools. At the end of the six month period, the diarrhea subsided and the pa-

tient had no further gastrointestinal symptoms until three months before admission when he again developed diarrhea. Two months before admission, his stools became black while he was taking medicine prescribed for the diarrhea. As soon as the medicine was discontinued, the stools again were of normal color. Six weeks before admission, the patient began to complain of dull aching pains in the epigastrium just to the right of the midline. The pain came on shortly after eating and continued for an hour or two. The patient frequently was relieved of pain upon belching. Occasionally there were lower abdominal cramps as well as the upper abdominal pain. On several occasions the patient regurgitated small amounts of food. During the last year he had lost approximately 20 pounds in weight.

Physical Examination.—Temperature was 37.6 C.; pulse 108; respiration 20; blood pressure 115/85. The patient was an emaciated, elderly Negro man lying flat in bed in no acute distress. He appeared chronically ill and there was evidence of recent weight loss. The skin was warm and moist. There was a corneal opacity in the right eye and the left pupil reacted sluggishly. There was complete loss of vision on the right and the retinal vessels in the left fundus were said to be normal. The tongue was red and the lateral margin was slightly smooth. There was no significant lymphadenopathy. Examination of the neck and thorax was said to be normal. The heart was not enlarged; a soft systolic murmur was heard at the apex. The abdomen was described as slightly distended. There was some tenderness in the epigastrium and the liver edge could be felt below the right costal margin. No masses were palpable except in the left lower quadrant where one observer felt a "tubelike mass" thought to be sigmoid colon. The findings of genital, rectal and neurologic examinations were normal.

Laboratory Findings.—Blood: red blood count 3.45 million, hemoglobin 11 grams, white blood count 9,650; differential count: basophils 1 per cent, eosinophils 2 per cent, stab forms 8 per cent, segmented leukocytes 56 per cent, lymphocytes 24 per cent, monocytes 9 per cent. Mean corpuscular volume 103, mean corpuscular hemoglobin 32.4, mean corpuscular hemoglobin concentration 31. Urinalysis: specific gravity not determined; acid reaction; no albumin or sugar; microscopic examination: occasional white blood cell. Stool examination: soft, brown, blood-streaked stool. Guaiac test, 4 plus. No ova or parasites seen. Blood Kahn test: positive. Blood chemistry: non-protein nitrogen 22 mg. per cent. Total proteins, 4.1 grams per cent; albumin 2.3 grams per cent; globulin 1.8 grams per cent. Venous pressure: 122 mm. of water. Circulation time: ether 11 seconds; decholin 22 seconds.

Roentgen Ray film of Chest: "Cardiac silhouette within normal limits; the aortic bulb is somewhat prominent; lung fields normal." Gastrointestinal roentgen ray films: "Stomach is enormous, show-

ing tremendous gastrectasia. Barium enema shows suppression of haustrations and finely dentate contour in the entire colon without notable lessening of caliber. Final conclusions from roentgen ray findings: pyloric obstruction; gastrectasia; colitis exudative." Gastric analysis: fasting gastric juice contained much partially digested food. Free acid without histamine 11 degrees; combined acid, without histamine, 100 degrees. Agglutination tests with typhoid, paratyphoid and dysentery antigens were all negative. Electrocardiogram showed low voltage in lead 1, a Q wave in lead CF-4, and upright T waves in all leads. The impression was "myocardial damage." Proctoscopy: proctoscopic examination revealed edematous, friable mucosa, many areas of which were oozing small amounts of blood. Several shallow ulcers were seen and, toward the distal end of the rectum, a small gravishwhite necrotic area was observed. Direct smears from the ulcerated area showed no parasites.

Course in Hospital.—Five days after the patient's admission, Dr. Tsuchiya found motile forms of Endameba histolytica in the stool. The patient was given 65 mg. of emetine daily for ten days and the diarrhea rapidly subsided. At the end of this period he was given daily chiniofen enemas and, although there was some return of the diarrhea, the stools were never bloody. This form of treatment was kept up until shortly before he died.

Throughout the patient's stay in the hospital, his stomach was aspirated at least once a day. Total volume of gastric contents present at the time of admission was approximately 2,000 cc. Continuous Wagensteen drainage was employed at times and the patient was given generous intravenous administrations of glucose, amigen and saline solution. He also received two blood transfusions. The concentration of sodium chloride in the patient's blood was measured frequently and only on one occasion did it fall below 600 mg, per cent. On the eighteenth hospital day, gastroscopic examination was performed and the antrum and angulus were described as normal; the pylorus was said to be small with evidence of chronic hypotrophic gastritis. Two small superficial hemorrhagic ulcers were described on the anterior wall of the stomach. The gastroscopist concluded that the obstructive lesion was "probably postpyloric or retroperitoneal." On the twenty-sixth hospital day, roentgen ray studies of the stomach were repeated and the stomach was now found to be of normal size. The roentgen ray report was as follows: "Special stomach examination shows fair restoration and normal size of stomach with evidence of hypertrophic change about the pylorus suggesting a prepyloric lesion, although the examination is unsatisfactory because the patient could not stand." A barium enema done at this time showed improved condition of the colon, generally, with less irritability and less evidence of mucosal exudative status. Final Conclusions: prepyloric lesion (? malignant), amebic dysentery (healing after treatment)."

The patient was given frequent small feedings

throughout the day and, although much of the food ingested was recovered at the time of gastric lavage, his general condition seemed to improve until the twenty-sixth hospital day when he became weaker and fever was noted for the first time. During the next five days the temperature remained elevated, the pulse rate increased, the white blood count rose to 15,200 and rales were heard over the chest anteriorly. On the thirty-second hospital day, shortly after being seen on ward rounds, the patient died. Digitalis therapy was instituted during the last forty-eight hours but had no effect on the patient's dyspnea.

CLINICAL DISCUSSION

Dr. W. Barry Wood, Jr.: This patient presents a difficult problem in gastroenterology. However, this patient had four distinct diseases which I think we should mention. He had amebic dysentery, serologic evidence of syphilis, pyloric obstruction and terminal bronchopneumonia. We might first consider the amebic dysentery. Dr. Duden, the diagnosis of amebic dysentery seemed to be quite certain although the only definite clinical symptom on which the diagnosis was made was diarrhea. How common is diarrhea in amebic dysentery?

DR. CHARLES DUDEN: This symptom is quite compatible with the diagnosis. I think the diagnosis should be accepted without much question since amebae were found in the stool.

Dr. Wood: How common is blood in the stool?

DR. DUDEN: It is common when a patient has ame-

bic dysentery.

DR. Wood: This patient presented a difficult problem of therapy. He was given emetine intramuscularly. Is this the usual therapy?

Dr. Duden: Emetine is commonly used, as is carbarsone. Acute attacks of amebic dysentery are most commonly treated with emetine but it is a toxic drug.

Dr. Wood: Would you have treated this patient in

the same manner, Dr. Larimore?

DR. JOSEPH LARIMORE: I always treat amebic dysentery with emetine plus some agent to take care of the cystic forms of the parasite in the bowel. I have used carbarsone and found it to be satisfactory. After this type of treatment, recurrences of diarrhea may indicate a fibrotic ulcer in the bowel, which condition protects the organism from the effect of the drug.

DR. Wood: Would you have given carbarsone in this case?

Dr. Larimore: You may give it by enema. Dr. Wood: Dr. Sale, have you ever administered car-

barsone by enema? DR. LLEWELLYN SALE: I have not. This man had

diarrhea. There might have been some question as to the absorption from the colon. DR. WOOD: Dr. Larimore, would you have given the

emetine? Dr. Larimore: It seems to be the correct therapy.

Dr. Wood: Could the dysentery have had anything

to do with the intestinal obstruction?

Dr. Duden: It is possible. The most common complication of amebic dysentery is liver involvement. This man did not show evidences of amebic abscess or hepatitis of the amebic type. He might have had a localized lesion or hepatitis. While the possibility exists, it would be very unusual as the cause of the pyloric obstruction.

DR. Wood: We must now consider the possibility of syphilis. Dr. Smith, this patient had a positive blood Kahn test. Do you think the patient had syphilitic

DR. JOHN SMITH: No, I would not make the diagnosis of syphilitic aortitis. I do not think there was enough evidence from the chest film in the anterior-posterior view to support such a diagnosis. You frequently see that configuration of the aorta in men of this age.

Dr. Wood: There is no other clinical evidence of syphilis, so your impression is that this was latent syphilis?

Dr. Smith: Yes. Dr. Wood: Would syphilis of the stomach cause a pyloric obstruction?

DR. SMITH: It might. Once syphilis of the stomach is established it is permanent. In this case the stomach was normal in three weeks. A syphilitic lesion would remain unchanged.

Dr. Larimore: In syphilis of the stomach the lesion usually involves the pyloric area of the stomach giving a funnel approach to the pylorus. I would suggest carcinoma of the stomach rather than syphilis.

Dr. Harold Scheff: The gastric analysis is also

against syphilis of the stomach.

DR. Wood: Syphilis of the stomach, then, seems unlikely. The main diagnostic problem in this case concerns the pyloric obstruction. We might discuss the location of the obstruction. There was some disagreement between the gastroenterologists and the radiologist as to where the obstruction was. On the basis of the roentgenograms, Dr. Larimore, you felt that this ob-

struction was prepyloric?

DR. LARIMORE: The only abnormality we could see was prepyloric. On that basis I rather felt that the lesion was prepyloric rather than postpyloric.

DR. Wood: Is there evidence in the films of any lesion other than pyloric gastritis?

There is no evidence of an ulcer or Dr. Larimore: any malignancy.

DR. Wood: The diagnosis, therefore, would be made

on the basis of gastritis in the prepyloric area?

Dr. Scheff: I would say that the gastritis was higher up in the stomach. The pylorus was small and some-what deformed, but the antrum looked normal to me through the gastroscope. The only lesions which we cannot see through the gastroscope that cause such a deformed pylorus are duodenal ulcers or pyloric ulcers.

DR. Wood: You did not see any prepyloric gastritis?

Dr. Scheff: No, the gastritis was in the pars media and in the cardiac region of the stomach. I had an excellent view of the antrum. I would suspect a lesion of the duodenum. The history suggests cicatricial deformity rather than one due to edema.

DR. WOOD: You think then, that the obstruction is in the duodenum or in the pylorus itself, and Dr. Larimore feels that it is in the prepyloric region. You have studied recently a group of patients with pyloric obstruction, Dr. Scheff. Is there a high incidence of gastritis in patients with pyloric obstruction?

Dr. Scheff: In duodenal ulcers there is a high incidence of gastritis. However, in those cases that were complicated by pyloric obstruction the incidence of gastritis became markedly increased. As a matter of fact we noted chronic superficial gastritis six times more frequently in patients who had gastrectasia than in our uncomplicated group.

Dr. Wood: The evidence as to the location of this lesion is apparently scanty. Nothing could be seen in the postpyloric region by roentgenogram. What are the commonest causes of pyloric obstruction?

Dr. Scheff: A prepyloric gastric ulcer may be responsible, and rarely an ulcer above the angulus may cause the obstruction because of edema. Carcinoma of the antrum is another important disease that may cause pyloric obstruction.

DR. Wood: Are there other causes that might be mentioned?

Dr. Scheff: Adhesions from operations, such as gall bladder operations.

Dr. Wood: Are there any others?

Dr. Duden: Extra-alimentary tumors.

Dr. Larimore: Adhesions may be caused by gallbladder disease itself.

Dr. Wood: All these conditions are rare compared

with the first two: ulcers and carcinoma. May we, therefore, consider only these two possibilities?

DR. CARL MOORE: I would not exclude syphilis.

Dr. Larimore: I would not consider any of the other possibilities.

DR. Woop: Ulcers and carcinoma and possibly syphilis are to be taken into consideration. What is the most likely condition in this case?

DR. LARIMORE: An ulcerative lesion is most likely.

DR. Wood: Where is this ulcer?

Dr. Larimore: I do not have definite data for an as-

sumption.

DR. DUDEN: This man must have had more obstruction than would be brought about by a prepyloric lesion. I think we have to keep in mind the possibility of a postpyloric lesion and I am in favor of a duodenal ulcer. I would favor an ulcer over carcinoma but I think he had more obstruction in his intestinal tract than we can explain as the result of a prepyloric lesion.

DR. LARIMORE: It is significant that this man gave no history of a duodenal ulcer. A duodenal ulcer, however, often continues for so long that it becomes the natural mode of life. One must investigate the early

history in all such cases.

Dr. Wood: Is that point against your diagnosis, Dr. Duden?

Dr. Duden: Yes.

Dr. Scheff: This man entered the hospital with a severe pyloric obstruction. He did not complain of it but we cannot rely entirely on the history given by the patient. The gastritis was discovered by roentgen ray examination. I think one should consider a benign lesion of the pylorus or the duodenum as being the cause of his difficulty. The commonest duodenal lesion is a duodenal ulcer, according to statistics. I certainly would favor a benign ulcer in this instance.

DR. Wood: I take it then that everyone is willing to rule out carcinoma, leaving as the most likely possibility a peptic ulcer of the duodenum or pylorus?

DR. LARIMORE: I would like to make a comment on the diagnosis of a pyloric obstruction. When I saw this patient there were prominent peristaltic waves over the abdomen. A very loud succussion was obtained on palpating the gastric area. The diagnosis of pyloric obstruction should have been made without the aid of fluoroscopy.

DR. Wood: That is a most pertinent comment. The most reliable clinical sign of pyloric obstruction is the observation of peristaltic waves moving from left to right across the epigastrium. Dr. Sale, I believe you

also saw this patient.

DR. SALE: I thought at first that this man had carcinoma, predicated largely on the fact that he was in that particular age group. When the films showed such a marked change in the size of the stomach I felt that a malignant lesion could be ruled out. As to the situation of the lesion I would leave this to the gastroenterologists.

DR. Woop: Concerning the treatment of this patient, as he was dying, both Dr. Duden and I wondered whether he had been given the correct therapy from the start. Should he have been operated upon when the obstruction was first demonstrated? We thought that the obstruction might be relieved by conservative treatment. Dr. Larimore, do you feel that the patient should have been operated upon earlier?

DR. LARIMORE: I do not think so. Decompression of the stomach certainly could have been continued. He could have taken liquid nourishment, and had transfusions. We had from the beginning a bad operative risk. I would have left the operation until later.

DR. Wood: That was our feeling. The patient developed broncho-pneumonia only a few days before he died. In summary, it seems as though most of the staff consider an ulcer to have been the cause of the pyloric obstruction. Dr. Larimore favors a prepyloric lesion. Drs. Duden and Scheff are in favor of an ulcer in the duodenum.

DR. WOOD'S DIAGNOSIS

Ulcer of prepyloric part of stomach.

ANATOMIC DIAGNOSIS

Adenocarcinoma of the prepyloric part of the stomach with partial stenosis of the pylorus.

Atropic gastritis.

Bronchopneumonia of all lobes of the lungs.

PATHOLOGIC DISCUSSION

Dr. Robert Moore: The observations at autopsy may well be presented under the four conditions mentioned by Dr. Wood—amebiasis, syphilis, pyloric obstruction and bronchopneumonia.

There was no evidence of infection with Endameba at the time of autopsy. Since the diagnosis was well-established by both clinical and laboratory methods, we want assume that the treatment brought about a

complete cure.

Anatomic changes related to syphilis were limited to a mild syphilitic aortitis. The lesion was definite both by gross and microscopic study, but probably did not contribute to the symptoms. There was no significant dilatation of the aorta.

The pyloric obstruction was caused by a small carcinoma strategically placed at the pyloric end of the stomach. If we accept interruption of the muscularis as proof of a primary ulcer and invasion of the muscularis as the criterion of a primary carcinoma, then this patient had a carcinoma, not preceded by an ulcer.

The bronchopneumonia involved all lobes of the lung

and was confluent in places.

CASE 54

PRESENTATION OF CASE

The patient, a 63 year old, white watchman was admitted to Barnes Hospital for the fifth time on February 1, 1944, and died February 7, 1944.

Chief Complaint.—Cough, orthopnea, hemoptysis and substernal pain.

Family History.—The patient's mother, father and brother all died of carcinoma.

Past History.—The patient's general health had been good until seventeen years ago when he was first found to have diabetes mellitus. He had whooping cough, measles, mumps, chicken-pox and scarlet fever in childhood. At the age of 28 he had a severe attack of bronchitis followed by pleurisy.

He was first admitted to Barnes Hospital in June 1927 at which time there were physical signs of chronic bronchitis and laboratory evidence of diabetes mellitus. He was discharged on a diabetic diet and given 20 units of insulin daily.

During the next five years he was followed in the diabetic clinic. He entered the hospital for the second time in December 1932. At this time he complained of girdle pains and frequency of urination. Examination revealed signs of a neurogenic bladder and a diagnosis of diabetic tabes was made.

The patient's third hospital admission occurred in July 1941 when he reentered the hospital complaining of polyuria, polydypsia and polyphagia, together with numbness and tingling of the hands and feet. The patient had been taking approximately 40 units of insulin a day, had been bothered by some pain in the extremities as well as numbness and tingling, and had also noted a chronic cough for several years. The diagnosis of diabetic

neuritis was confirmed by the neurologic service, the patient's diabetes was regulated, and he was discharged on liver therapy and insulin. A roentgen ray film of the chest, taken on this admission, showed only an increase in peribronchial markings.

The patient was admitted to Barnes Hospital for the fourth time on November 26, 1941, for examination of the spinal fluid. A lumbar puncture was performed and the spinal fluid findings were normal except for a total protein of 120 mg. per cent. He was placed on protamine insulin, 20 units given once a day. Following discharge from the hospital he suffered extreme pains in his legs and had difficulty in walking because of ataxia and weakness of his feet. He was forced to take codeine steadily for the relief of this pain, and became almost a complete invalid. He continued to be bothered by a chronic nonproductive cough.

Personal History.—The patient was born in West Virginia and had always lived in this country. He was said to have been a heavy drinker.

Present Illness.—Two months before his final admission to the hospital the patient noticed an increase in his cough and began to raise small amounts of sputum. Six weeks before entering he noticed blood streaked sputum on several occasions. Five weeks before admission, there was gradual onset of a dull aching pain in both shoulders and beneath the sternum. The pain gradually increased in severity. Two weeks later the patient was suddenly seized with a very severe substernal pain. Following this attack the shoulders ached constantly but the chest pain was intermittent. There was mild dyspnea. Ten days before admission the patient noted that the veins over the brow and neck were becoming prominent and that his face was puffy. He also noted distension of his arm veins. Five days later he had another very severe attack of substernal pain requiring a hypodermic injection for relief. With these symptoms the cough persisted and finally the patient developed some anorexia although there was no dysphagia.

Physical Examination.—Temperature was 37 C.; pulse 88; respiration 24; blood pressure 170 90 in the left arm, 165 80 in the right arm. The patient was a moderately emaciated white man who appeared chronically ill and was obviously in great distress. He was both dyspneic and orthopneic and complained constantly of severe pain in the chest and arms. There was marked distension of the veins in the head, neck and arms. The pupils were small but reacted normally; the eyelids were puffy. The fundi showed slight arteriovenous nicking and marked distension of the retinal veins. A few discreet nontender lymph nodes were felt in the neck and in both axillae. The anterior-posterior diameter of the chest was somewhat increased. Many dilated capillaries were visible over the chest wall extending down to the rib margins. The lungs were clear to physical examination except for a few coarse rales in the right lung base. The diaphragm moved poorly. The heart could not be outlined because of the hyperresonant percussion

note throughout the chest. The sounds were distant. The abdominal examination was normal except for the presence of bilateral inguinal hernia. There was slight edema of the ankles but the veins of the legs were not as prominent as those of the arms. No pulsation could be felt of the peripheral arteries of the legs. The knee jerks were hypoactive and there was almost complete absence of vibratory and position sense. The Rhomberg test was positive.

Laboratory Findings.—Red blood cell count was 4.04 million; white blood cell count 9,000; hemoglobin 12 grams; hematocrit 48 per cent; differential count: basophils 1 per cent, eosinophils 3 per cent, juveniles 3 per cent, stab forms 4 per cent, segmented neutrophils 61 per cent, lymphocytes 23 per cent, monocytes 5 per cent. Urinalysis: Specific gravity 1.1019; reaction acid; albumin negative: sugar 3 plus. Microscopic examination: from 1 to 3 white blood cells per high powered field. Stool examination: normal. Blood Kahn reaction: negative. Blood chemistry: fasting blood sugar 255 mg. per cent; nonprotein nitrogen 29 mg. per cent; total protein 5.1 grams per cent; albumin 3.8 grams per cent; globulin 1.3 grams per cent. Venous pressure left arm 400 mm. of water; left leg 80 mm. of water. Circulation time (arm to tongue) 23 seconds. Fluoroscopic examination showed questionable enlargement of right hilar shadow. Lateral view was not obtained because of patient's condition. Roentgen ray examination: posterioranterior view of the chest revealed a lobulated shadow extending out from the left border of the heart in the region of the descending aorta and pulmonary conus. On the right there was a moderate amount of perihilar infiltration and the lung markings were coarse and fibrous. Left lung field was clear but both costophrenic angles were obliterated. The diaphragm was irregular and there were streaks of thickened pleura in the lower portion of both pleural cavities. In the lateral view the tumefaction previously described was seen to lie in the midportion of the mediastinum." Electrocardiogram showed low voltage, notching in all leads, left axis deviation and a PR interval of .20. All T waves were upright.

Course in Hospital.—The patient's temperature remained normal throughout his stay in the hospital and his diabetes was reasonably well controlled with 20 units of protamine insulin supplemented by occasional small doses of regular insulin. On two occasions the patient suffered rather typical insulin reactions but responded promptly to the administration of carbohydrate by mouth. On the second day in the hospital digitalis therapy was begun but in spite of this the patient became more dyspneic and gradually cyanotic and complained of severe chest pain radiating down the arms. He was relieved of chest pain only by frequent doses of morphine. On the fifth hospital day radiotherapy over the chest was begun, but both the dyspnea and pain gradually became more severe. During the next two days the patient became mentally confused and the cyanosis increased. He

became more and more restless; carphologia was noted, the respirations became shallow and the pulse became weak. He expired quietly on the seventh hospital day.

CLINICAL DISCUSSION

Dr. Harry Alexander: This patient presented symptoms of at least two diseases, diabetes mellitus and some intrathoracic condition. His diabetes had been known for seventeen years. He had been seen intermittently at this institution for the entire length of time. He developed an extensive neuritis called "diabetic tabes." Dr. Bulger, does the fact that the patient suffered this complication imply that the treatment of the diabetes was inadequate?

DR. HAROLD BULGER: Diabetic neuritis does not appear to be related to the degree of hyperglycemia. It may occur as a complication of adequately controlled

diabetes.

Dr. Alexander: Are there lesions in the peripheral

nerves in diabetic neuritis?

DR. Bulger: My impression is that the lesion histologically is very indefinite. Some authors emphasize cellular infiltration in peripheral nerves and others put emphasis on cellular changes in the central nervous system.

DR. ALEXANDER: Are there not changes in the cord?

Dr. Bulger: Not striking ones.

Dr. ALEXANDER: Why is the syndrome called diabetic tabes?

DR. JOHN SMITH: Because it resembles tabes dorsalis. There is ataxia.

Dr. Alexander: Are the pupils ever involved?

DR. BULGER: At one time I saw a patient with Argyll-Robertson pupils but no other signs. This patient had no evidence of syphilis, but did have diabetes. Pupillary changes are, however, rare.

Dr. Alexander: This patient was given liver extract.

For what reason?

Dr. Bulger: Liver was given because it is thought that the lesions may be related to a vitamin deficiency.

DR. ALEXANDER: Would that be true with a spinal

fluid protein of 120?

W. BARRY WOOD: Lesions may appear in the posterior columns to cause such symptoms as this patient had.

DR. ALEXANDER: Would not inflammatory lesions produce a high spinal fluid protein? How high is the protein content in diabetic tabes?

DR. JOHN SMITH: It varies from 50 milligrams, which

is the upper limit of normal, to 150.

DR. WOOD: Dr. Schwab commented on this in the chart. He stated that a high spinal fluid protein is often seen in "pseudo tabes."

DR. ALEXANDER: Let us consider the lungs of this patient. At the age of 28 he had bronchitis and pleurisy. No mention is made in the history of any further difficulty in the lungs until seventeen years later. His previous hospital admissions gave no information about cough. In his last admission the history states that his cough had increased, which implies that he had had a cough earlier. We might assume, therefore, that this man had a chronic cough. Dr. Goldman, what are the usual circumstances that bring about a chronic bronchitis?

Dr. Goldman: The patient apparently had chronic bronchitis and the lesions in his lungs were not suffi-ciently active to produce fever. We have ruled out tuberculosis on the basis of the radiographs. A nonproductive cough may be caused by pleuritic involvement over a period of years.

Dr. Alexander: Would chronic sinusitis cause such

a cough?

Dr. Goldman: It may produce a chronic cough.

Dr. Alexander: When a patient has a chronic cough, do you think it important to investigate and treat the sinuses?

Dr. Goldman: On theoretical grounds, it is important, but it is not, in my openion, as significant as was formerly thought. I do feel that there is a definite relation between chronic sinusitis and cough and that the sinuses should be investigated.

Dr. Alexander: In long-standing bronchitis what may

we expect to find in the lungs?

DR. GOLDMAN: Chronic changes in the bronchi: thickening of the mucosa, infiltration of cells and changes in elastic tissue around the bronchi.

Dr. Alexander: Dr. Bottom, did this patient have

emphysema?

DR. DONALD BOTTOM: I do not think we can make that diagnosis on the basis of the radiographs.

Dr. Alexander: Does the roentgenograph suggest a tumor?

Dr. Bottom: Yes, it does.
Dr. Alexander: The tumor lies in the midmediastinum. If this man had bronchiectasis, would it be due to the tumor?

Dr. Bottom: I don't think so.

Dr. ALEXANDER: This man had all the signs of a mediastinal obstruction with dilated veins as well as

high venous pressure. Would this cause dyspnea?

DR. Edward Massie: Dyspnea is common in obstruction of the superior vena cava. We know that in this patient there was marked obstruction in the return flow of blood from the head, arms and thorax, which means that the venous return to the right heart is greatly diminished as is the case in peripheral circulatory failure or shock.

Dr. Alexander: His circulation time was 23 seconds,

which is not much delayed.

DR. MASSIE: Yes, his circulation time was not elevated significantly and there were no definite signs of cardiac failure. Actually this patient's general venous pressure is normal, judging from the reading in the femoral vein.

Dr. Alexander: What about the fact that no stridor

was observed? He was orthopneic.

DR. Massie: I recall examining this patient on the ward and his breath sounds were markedly diminished in the right lung which would indicate to me the presence of a pulmonary factor in his dyspnea.

Dr. Alexander: The signs of obstruction of the superior vena cava were definite. Is it your feeling, Dr. Massie, that the dyspnea was due to insufficient auricu-

lar intake?

Dr. Massie: Yes, I believe that this factor led to a decrease in blood supply to the respiratory center and thus caused dyspnea.

Dr. Alexander: Are there other suggestions?

Dr. Wood: I would prefer to explain the dyspnea by assuming that the obstruction to the superior vena cava prevented return of the blood from the brain. Impaired venous return would cause a slowing of circulation in the brain, a lowering of oxygen tension and stimulation of the respiratory center.

DR. ALEXANDER: Dr. Goldman, do you believe that this man had a tumor in the posterior superior me-

diastinum?

Dr. Goldman: The tumor must have invaded the posterior mediastinum because of the evidence of superior vena caval obstruction.

Dr. Alexander: May we rule out then the usual tu-

mors of the anterior mediastinum?

DR. GOLDMAN: Yes, such as tumors of the thyroid and thymus. We must consider the lymphoma group including Hodgkin's disease and lymphosarcoma. Primary carcinoma of the mediastinum is rare. Secondary carcinoma is much more common.

Dr. Alexander: The angiomata are not common. If this were a mediastinal tumor I should think of one of the lymphomas. Are there further comments?

Dr. LLEWELLYN SALE: If the physician had not seen the radiographs, would he not have to consider an aneurysm?

Dr. Alexander: If this were an aneurysm it would be along the descending aorta.

Dr. Sale: To cause an obstruction of the superior vena cava it would have to be in the arch. I think that the lateral radiograph rules out such a possibility.

Dr. Alexander: Your point is important and is well taken. Dr. Goldman, in reference to this man's pain, what about bronchogenic carcinoma?

DR. GOLDMAN: If this is bronchogenic carcinoma, it must have started in the larger bronchi close to the hilus.

DR. ALEXANDER: What would have caused the pain?
DR. GOLDMAN: Involvement of the mediastinal nerves would cause the pain.

DR. ALEXANDER: Many bronchogenic carcinomas occur near the bifurcation and extend into the mediastinum.

Dr. Bottom: The primary tumor in this patient may well have metastasized to the lymph nodes.

DR. ALEXANDER: It is then the consensus of opinion that this is a bronchogenic carcinoma with metastases to the lymph nodes and obstruction to the superior vena cava.

DR. ALEXANDER'S DIAGNOSIS

Bronchogenic carcinoma with metastases to mediastinal lymph nodes.

Obstruction of superior vena cava.

Diabetes mellitus.

ANATOMIC DIAGNOSIS

Undifferentiated carcinoma involving the upper lobe of the right lung, pleura of both lungs, mediastinal tissues and the mediastinal lymph nodes.

Compression of the superior vena cava and the azygos vein.

Edema of the arms and legs. Hydrothorax, right (800 cc.).

Columnar hyperplasia of islets of Langerhans.

Glycogen in the renal tubules (history of diabetes mellitus, seventeen years).

PATHOLOGIC DISCUSSION

Dr. Robert Moore: The anatomic lesion of the pancreas in relation to the diabetes was columnar hyperplasia of the islands. Glycogen was present in the renal tubules indicative of a glycosuria in the recent past. The arteriosclerosis was of advanced grade in the coronary arteries but only slight to moderate in the other arteries.

The carcinoma involved the apex of the upper lobe of the right lung and the adjacent mediastinal structures. This is the type of tumor which, by extension, involves the sympathetic nerves and ganglia to produce Horner's syndrome and the complete picture of the superior pulmonary sulcus tumor of Pancoast. This patient did not live long enough for that type of lesion to develop.

ABSTRACTS AND DIGESTS

INHALATION THERAPY

Principles and Practices of Inhalation Therapy. Alvan L. Barach. Philadelphia. J. B. Lippincott Company. 1944.

Between the covers of this book one finds information hitherto widely scattered through the medtical literature. It discusses the pathologic physiology, the rationale of clinical procedure, a description of the apparatus to be used, and the manner of its use in thirty clinical conditions in which inhalational therapy is useful. Separate chapters are devoted to the care of inhalation therapy

equipment, to respirators, to oxygen analyzers and to a method of obtaining oxygen and carbon dioxide concentration in the inspired air in oxygen therapy equipment.

It will be useful to the practicing physician and to the technical personnel.

C. H. EYERMANN, M.D.

BOOK REVIEWS

MAURICE ARTHUS' PHILOSOPHY OF SCIENTIFIC INVESTIGATION. Preface to De l'Anaphylaxie à l'Immunite, Paris, 1921. Translated from the French, With an Introduction By Henry E. Sigerist. Foreword by Warfield T. Longcope. Baltimore: The John Hopkins Press. 1943. Price \$.75.

First published as an introduction to "De l'Anaphylaxie à l'Immunite," this brief essay once more demonstrates the timeless character of basic principles. Any student working in a laboratory, or physician preparing a clinical review might do very well to study Arthus' "directions": "Observe facts, conceive a hypothesis, determine its value through one or several series of judiciously instituted experiments, give the interpretation, or more accurately, one interpretation of the facts and ascertain the excellence of this interpretation through strict criticism; generalize the results experimentally without forgetting that an investigation must be pushed to the end . . ." "Seek facts and classify them—and you will be the workmen of science. Conceive or accept theories—and you will be their politicians."

Sulfonamide Therapy in Medical Practice. By Frederick C. Smith, M.D., M.Sc. (Med.), F.A.P.S. Editor of Philadelphia Medicine, official organ of the Philadelphia County Medical Society; Editor of The Medical World; Lt. Col., Medical Reserve Corps, Army of the United States. Foreword by George Morris Piersol, B.S., M.D., Professor of Medicine, Graduate School of Medicine, University of Pennsylvania; Editor-in-Chief, The Cyclopedia of Medicina, Surgery and Specialties. Illustrated With Numerous Engravings, Graphs and Tables. Philadelphia: F. A. Davis Company. 1944.

This book represents one of the latest editions to rapidly expanding knowledge of sulfonamide and related compounds in medicine. The author begins the treatise on sulfonamide therapy in medical practice by reviewing some of the more basic considerations of the sulfonamide compounds, particularly with reference to the type of disease and indications for the drug. The author has given a moderate amount of information in regard to the chemical structure and the nature of the compound and, also, in regard to the modes of action.

The remaining portion of the book is then divided up alphabetically into the various types of disease entities in which the sulfonamide and related compounds have been used and the author attempts throughout the remaining portion of the treatise to evaluate for the reader the use of the compounds, including the rationale, type of therapy, modes of administration, the amount of drugs given, evidence of toxicity and the treatment for the various toxic manifestations that have been recognized in sulfonamide therapy. He outlines in some parts of the book attempts at prophylactic use of sulfonamide compounds, and also attempts to evaluate the rationale of their use in various disease entities.

At the conclusion of each disease entity, following his interpretation and discussion, there is represented at least one, and usually more than one, bibliographies in which the reader may pursue further evaluation of the compound in discussion.

A. E. U.

THE JOURNAL

of the

Missouri State Medical Association

623 Missouri Bldg. Telephone: Newstead 0404-05

Subscription - - - \$3.00 a year in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent.

OCTOBER, 1944

EDITORIALS

MISSOURI'S PREPAYMENT MEDICAL PLAN SOON TO BE LAUNCHED

With the granting of a pro forma decree of incorporation to Missouri Medical Service, plans are near completion for the launching of Missouri's prepayment medical and surgical care plan which was approved last spring by the House of Delegates of the Missouri State Medical Association. It is hoped that the plan will be in operation within the next six weeks.

While most members of the Association are familiar with its details, they bear summarizing: The plan will be administered through Blue Cross Service under authorization of the board of trustees of Missouri Medical Service which will guide policies. It provides for medical and surgical care for hospitalized cases at a cost to single persons of 85 cents per month and to families, regardless of their size, of \$2.25 per month. Although subscribers must join in groups—professional or trade association, labor unions or others—the plan is open to everyone. For the present, families will be limited to \$1,000 of medical and surgical care in one year.

The reaction of the public as evidenced by the favorable response of the press is worthy of comment. The Missouri State Medical Association has been widely acclaimed for its farsightedness in adopting it.

"The Missouri Medical Association has taken a progressive step toward meeting public demands," editorialized the Columbia Missourian, while the St. Louis Star-Times headlined its editorial, "Missouri's Progressive Doctors." Wrote the Kansas City Star: "The Missouri medical profession is furnishing the leadership for a broad, new conception of public health in Missouri," and the St. Louis Globe-Democrat wrote that "the medical men of the state are to be commended for stepping off the path of traditional ultra-conservatism and attempting to meet a social need that has been too long neglected."

Favorable editorial comment was not confined to Missouri. The *Tulsa Tribune*, in its editorial columns, declared that "one of the best ways to keep it (socialized medicine) out of this country will be by the broadening of private medical practice through plans like Missouri's."

Detailed information concerning Missouri Medical Service will be sent to all members of the Association within the near future.

MISSOURI CHAPTER OF AMERICAN TRUDEAU SOCIETY

A Missouri Chapter of the American Trudeau Society will be formed at a meeting on October 4 during the annual fall conference of the Kansas City Southwest Clinical Society. The meeting will be held at Hotel Phillips, Kansas City, with an address by Dr. John B. Barnwell, Ann Arbor, Michigan. Dr. Barnwell is associate professor of internal medicine, University of Michigan Medical School; physician in charge, tuberculosis unit, University Hospital; consultant, Oakland County Tuberculosis Sanatorium, Pontiac, Michigan

Dr. Barnwell has just completed a term as president of the American Trudeau Society and is an international authority on tuberculosis and diseases of the chest. He will speak before the Trudeau Society in Kansas City on "Tuberculous Tracheobronchitis." He will speak before the Kansas City Southwest Clinical Society on "Tuberculosis in a General Hospital."

With the added emphasis on tuberculosis as a major health problem due to war engendered causes, the proposed formation of the Missouri Chapter of the American Trudeau Society is a forward step in interesting the general practitioner as well as the specialist in this disease. The new chapter will not be a society of specialists but is welcoming all physicians. The qualification for membership is merely an interest in tuberculosis rather than specialized training.

The directors of the Missouri Tuberculosis Association and the Committee on Tuberculosis of the Missouri State Medical Association are initiating the formation of the chapter. The Missouri Tuberculosis Association is acting as executive office for the chapter.

NEWS NOTES

Dr. L. M. Garner, formerly health officer with headquarters at Higginsville, has assumed the duties of director of child hygience for the State Board of Health, Jefferson City.

Among speakers at the Oklahoma City Clinical Society in Oklahoma City, October 23 to 26, will be Drs. Charles C. Dennie, Lawrence P. Engel and Ralph H. Major, Kansas City; and Ralph A. Kinsella and Hugh McCulloch, St. Louis.

Dr. Ernest Sachs, St. Louis, will speak at the Post-graduate Assembly on "Nervous and Mental Diseases, and War" sponsored by the Institute of Medicine of Chicago at the Palmer House, Chicago, November 1 and 2. Dr. Sachs' subject will be "Residuals of Neurosurgical Disorders."

Captain Alphonse McMahon, Bethesda, Maryland, was a guest speaker at the Benjamin Rush Palmer Memorial Meeting of the Kentucky State Medical Association held in Lexington, Kentucky, September 18, 19 and 20. Captain McMahon spoke on "Medical Aspects of Tropical Diseases."

The Woman's Field Army of the Missouri State Committee of the American Society for the Control of Cancer recently issued an annual report from July 1942 to July 1943 which shows that during that year 355 programs on cancer control were arranged by the Women's Field Army, fifteen radio broadcasts were made, 144,220 pieces of literature on cancer and cancer control were distributed and two thousand campaign posters and counter cards were used in hospitals, libraries, welfare organizations, department stores and business houses.

The St. Louis Officer Procurement District, Army Service Forces, has been notified of a critical need of the Surgeon General for laboratory officers (bacteriologists and biochemists) and sanitary engineers. The demand for this personnel is increasing with the advance made by combat units. Communications should be addressed to S. C. Judge, Jr., Lt. Colonel, Officer in Charge, Army Service Forces, 944 Federal Building, St. Louis 1.

Speakers at the Mississippi Valley Medical Society meeting in Peoria, Illinois, September 27 and 28, included Drs. Hollis N. Allen, Edwin C. Ernst, O. P. J. Falk, George T. Gafney, Louis H. Jorstad, Roland M. Klemme, Edward Massie, R. O. Muether, Robert A. Moore, Arthur W. Neilson and Carl A. Wattenberg, St. Louis, and Lt. Comdr. Henry C. Allen, Portsmouth, Virginia, and Capt. Alphonse McMahon, Bethesda, Maryland. Dr. A. S. Bristow, Princeton, presided at one of the sessions.

Dr. Robert Elman, St. Louis, has been appointed chairman of a committee which will work with the State Board of Vocational Education in an extension of Missouri's present rehabilitation program which was made possible through passage by Congress last year of amendments to the Vocational Rehabilitation Act. The program has as its objective the transformation of indigent disabled to full or increased earning capacity. Other physician members of the committee are Drs. Frank R. Bradley, J. Archer O'Reilly, James B. Costen, Edwin F. Gildea, St. Louis; B. Landis Elliott, Frank D. Dickson, Herbert L. Mantz, A. Graham Asher, Kansas City; A. R. McComas, Sturgeon; W. A. Bloom, Fayette; C. Souter Smith, Springfield; Dudley S. Conley, Columbia; John W. Williams, Jr., Jefferson City.

DEATHS

Rooks, Ola Raymond, M.D., Trenton, a graduate of the University Medical College of Kansas City, 1909; member and former president of the Grundy-Daviess County Medical Society; aged 57; died April 5.

Owens, James F., M.D., Springfield, a graduate of Northwestern Medical College, St. Joseph, 1892; honor member of Buchanan County Medical Society; retired; aged 74; died August 1.

Bedford, Stephen V., M.D., Jefferson City, a graduate of the University of Missouri School of Medicine, Columbia, 1903; honor member of the Cole County Medical Society; retired; aged 63; died August 23.

Died While in Military Service

Newman, Ross, M.D., Kansas City, a graduate of Washington University School of Medicine, 1931; junior member of the Jackson County Medical Society; Fellow of the American Medical Association; Major in the Medical Corps of the Army of the United States; aged 38; died in Gardner General Hospital, Chicago, June 6.

RANDOM OBSERVATIONS

By a ROVING REPORTER

Missouri may well be proud of its health record as given in statistics recently published in the Public Health Reports. St. Louis, for example, has the lowest rate for tuberculosis in both white and non-white persons of any city of comparable size. Infant mortality and maternal mortality have decreased in the last five years and the 1943 figure is lower than the average for the country. So much for the black side of the ledger. On the red side are rates for diphtheria, whooping cough and measles above the national average and not showing the national decrease of the last five years.

Orchids for the month to the International Health Division of the Rockefeller Foundation. In the annual report for 1943 is this statement: "For over six consecutive years no Aedes adgypti-transmitted yellow fever has been recorded in the Americas." This accomplishment is all the more remarkable in view of the expenditure of money. Only a little more than seven million dollars has been spent by the Division to eliminate a scourge. A few dollars in the right place with proper cooperation yields dividends. We sometimes forget this in these days of governmental paternalism and billion dollar budgets.

There is no limit to the intricacies of the law. War Department Circular No. 205 defines the regulations about venereal disease and sets forth that venereal disease proved to be contracted from spouse is to be regarded as incurred in line of duty.

Many Missourians who graduated from Washington University from 1910 to 1923 should examine the September number of *The Journal of Experimental Medicine*. There are two articles by Eugene L. Opie who officially retired several years ago, but continues active research.

BOOK REVIEW

Personal and Community Health. By C. E. Turner, A.M., Sc.D., Dr.P.H. Professor of Public Health in the Massachusetts Institute of Technology; Formerly Associate Professor of Hygiene in the Tufts College Medical and Dental Schools; Sometime Member of the Administrative Board in the School of Public Health of Harvard University and the Massachusetts Institute of Technology. Seventh Edition. St. Louis: C. V. Mosby Company. 1943. Price \$3.50.

This is an excellent book. The author is one of the foremost health educators of the nation and he has succeeded in making personal health intelligible to the layman. A wealth of information is obtainable on such subjects as the care of the teeth, the care of the skin, foot hygiene and nutrition and the physician could well recommend this to certain of his patients. The doctor will profit by the concise, up-to-date discourses on health hazards in industry and on the control of communicable diseases.

If there are criticisms to be made of a work of this sort, one may question the relative values devoted to health problems of current interest and those devoted to the more or less stereotyped description of diseases that are of historical interest. For example, the pediatrician will look at once for the author's views on rheumatic fever and find only a few paragraphs. He will read that neuritis is a type of rheumatism, and a lack of ascorbic acid in the diet may produce symptoms of rheumatism, and that accidental injury to the ankle may account for rheumatic pains in the leg and back when these are not caused by focal infections. The distinction between rheumatoid arthritis and rheumatic fever is not clear.

Again, one would expect some description of the Kenney treatment of poliomyelitis in a book of this sort but this is not mentioned. Certainly the Kenney method of poliomyelitis therapy which, rightly or wrongly, has been brought forcibly to the attention of the medical profession and the laity, and such a major public health problem as rheumatic fever, deserve more attention than that devoted to the epidemic of Asiatic cholera from the Broad Street Well, which occurred in London in 1854, and the oft repeated story of Jenner and the dairy maid, in the discovery of smallpox vaccination.

The book has gone through seven editions which attests its values to those interested in community health.

H. L. D.



Doing her part?

Thousands of patriotic war worker-housewives would be shocked to learn that, although they try to and think they do serve and eat properly balanced meals, far too often the reverse is true! Too little time, topsy-turvy eating schedules, insufficient nutritional knowledge, improper food preparation—whatever the reason, the fact remains: The daily diets of these, and a great many other persons, too often fail to provide adequate amounts of the important protective

foods. Consequently, subclinical vitamin deficiencies are far from rare. • When you suspect that such a deficiency exists, you will want not only to correct the unbalanced diet, but also to prescribe a dependable vitamin preparation as a supplementary measure. To make sure your patients receive vitamin preparations of dependable quality and potency, why not specify Abbott on all your vitamin orders? ABBOTT LABORATORIES, NORTH CHICAGO, ILLINOIS.

Abbott Vitamin Products

INDEX TO ADVERTISERS

Abbott Laboratories	23
Bernheim Distilling Company	
Borden Company	9 38
Camel Cigarettes	7 19
Canada Dry Ginger Ale, Inc. Cheplin Laboratories, Inc.	
Ciba Pharmaceutical Products, Inc. Ciba Pharmaceutical Products, Inc. Inc.	15
Commercial Solvents Corporation	11
Faith Hospital	
Glenwood Sanatorium	
Gradwohl School of Laboratory Technique Grandview Sanitarium	34
Hamilton-Schmidt Surgical Company	
Hanger, J. E., Inc. Hanley, Edmund F.	36 42
Holland-Rantos Company	8
Hynson, Westcott & Dunning, Inc. Isle, W. E., Company	
Lederle Laboratories, Inc.	25
Lilly, Eli and Company	16 26
M & R Dietetic Laboratories, Inc. Major Clinic Association	
Mead Johnson & Company	46
Medical Protective Company Milwaukee Sanitarium	18 1
Miscellaneous Announcements	42
Mosby, C. V., Company	37 22
National Pathological Laboratory Neurological Hospital, The	18 28
Norbury Sanatorium	32
Parke, Davis & Company Philip Morris & Company	14
Physicians Casualty Association	. 34
Producers Creamery Company	
Schenley Laboratories, Inc.	
Schieffelin & Company	. 18
Schmid, Julius, Inc. Searle, G. D. & Company	
S. M. A. Corporation	. 2
Smith-Dorsey Company	, 35
Southern Medical Association	
Stearns, Frederick & Company. Stokes Sanitarium	. 3
Tampax, Inc.	
Wallace Sanitarium Wander Company, The	
White Laboratories, Inc.	. 31
Winthrop Chemical Company	
Young, F. E. & Company	. 40
Zemmer Company	. 22

BOOKS RECEIVED

Textbook of Gynecology. By Emil Novak, M.D., F.A.C.S., Associate in Gynecology, The Johns Hopkins Medical School; Gynecologist, Bon Secours and St. Agnes Hospitals, Baltimore. Second Edition. Baltimore: Williams & Wilkins Company. 1944. Price \$8.00.

Surgical Disorders of the Chest. Diagnosis and Treatment. J. K. Donaldson, B.S., M.D., F.A.C.S., Major, Medical Corps, Army of the United States; Diplomate American Board of Surgery; Associate Professor of Surgery and In Charge of Thoracic Surgery, University of Arkansas School of Medicine, etc., Surgical Staff, St. Vincent's Infirmary and Visiting Staff, Baptist Hospital, Little Rock, Arkansas. Formerly Chest Surgeon to Arkansas State Hospital for Nervous Diseases; Associate Surgeon, Robert B. Green Hospital, Visiting Surgeon to Santa Rosa, Nix, and Medical Arts Hospitals, San Antonio, Texas. Illustrated with 127 Engravings. Philadelphia: Lea & Febiger. 1944. Price \$6.50.

Fertility in Women. Causes, Diagnosis and Treatment of Impaired Fertility. By Samuel L. Siegler, M.D., F.A.C.S.; Attending Obstetrician and Gynecologist, Brooklyn Women's Hospital; Attending Gynecologist, Unity Hospital; Assistant Obstetrician and Gynecologist, Greenpoint Hospital; Attending Sterility Clinic, Greenpoint Hospital; Consultant in Gynecology, Rockaway Beach Hospital; Diplomate American Board of Obstetrics and Gynecology; Fellow New York Academy of Medicine; Member Society for the Study of Internal Secretions. With a Foreword by Robert Latou Dickinson, M.D. 194 Illustrations Including 40 subjects in full color on 7 plates. Philadelphia: J. B. Lippincott Company. 1944.

Segmental Neuralgia in Painful Syndromes. By Bernard Judovich, B.S., M.D. Instructor in Neurology, Graduate School of Medicine, University of Pennsylvania; Clinical Instructor in Neurology, Women's Medical College; Chief of Neuralgia Clinics, Philadelphia General Hospital, Graduate Hospital, and Women's Medical College Hospital, Philadelphia, Pa., and William Bates, B.S., M.D., F.A.C.S., F.I.C.S. Professor of Surgery, Graduate School of Medicine, University of Pennsylvania; Consulting Surgeon, Babies' Hospital and Philadelphia Home for Incurables; Consulting General Surgeon, Wills Hispital, Philadelphia, Pa. Foreword by Joseph C. Yaskin, M.D., Professor of Neurology, Graduate School of Medicine, University of Pennsylvania, Philadelphia, Pa. 178 Illustrations. Philadelphia: F. A. Davis Company. 1944.

SIMPLIFIED DIABETIC MANAGEMENT. By Joseph T. Beardwood, Jr., A.B., M.D., F.A.C.P.; Associate Professor of Medicine, Graduate School of Medicine, University of Pennsylvania; Physician to the Presbyterian Hospital in Philadelphia, Physician in Chief to Department of Metabolic Diseases, Abington Memorial Hospital, Abington, Pa.; Visiting Physician in Charge of Diseases of Metabolism, Bryn Mawr Hospital, Bryn Mawr, Pa.; Chief of the Metabolic Department, Philadelphia Hospital for Contagious Diseases. And Herbert T. Kelly, M.D., F.A.C.P., Associate in Medicine, Graduate School of Medicine, University of Pennsylvania; Associate Physician, Presbyterian Hospital; Chief, Department of Medicine, Doctors' Hospital; Chairman of the Committee on Nutrition, Medical Society of the State of Pennsylvania; Honorary Chairman, Pennsylvania Nutrition Council. Fourth Edition. Philadelphia: J. B. Lippincott Company. 1944. Price \$1.50.

THE JOURNAL

Missouri State Medical Association

The Official Organ of the State Association and Affiliated County Societies Issued Monthly under direction of the Publication Committee

COPYRIGHTED, 1944, BY MISSOURI STATE MEDICAL ASSOCIATION. ALL RIGHTS RESERVED.

Volume 41

NOVEMBER, 1944

Number 11

RALPH L. THOMPSON, M.D., Editor HELEN PENN, Assistant Editor 623 Missouri Bldg., St. Louis, Mo. Telephone, Newstead 0404-05

RALPH L. THOMPSON, M.D., Chairman W. A. BLOOM, M.D. ROBERT MUELLER, M.D. J. WILLIAM THOMPSON, M.D. PUBLICATION COMMITTEE

NEUROCIRCULATORY ASTHENIA

COL. JOHN T. KING, M.C.

WASHINGTON, D. C.

I am not sure whether or not neurocirculatory asthenia is strictly a cardiac subject, but I am sure if the cardiologists do not claim it the psychosomaticists will. But even then I think the psychosomaticists will agree that there is perhaps something physical and something physiologic about this disorder and that it is not strictly and purely a psychic group of symptoms. It is an American disorder, as American as baseball. Certainly it has existed in all the wars, and it is hard to conceive of an army of any size in which it is not more or less prevalent unless, by some miraculous preparation, these patients were largely weeded out at the source. At any rate, most of the descriptions have been American; the name originally was American because there are numerous references to the "irritable heart" of the soldier back to the time of the American Civil War.

DaCosta, a cardiologist, is credited with having given the first accurate description of this disease. Nevertheless, the literature of 1863-1864 shows that two or three people gave pretty accurate descriptions of the condition, calling it "the irritable heart of soldiers." In 1864, just before DaCosta's book came out, Dr. Alfred Stillé gave the first description of any accuracy of the irritable heart of the soldier. Stillé was president of the Philadelphia County Medical Society and he took "The Irritable Heart" as the topic of his presidential address in January 1863. It was about April 1864 that Da-Costa's textbook on medical diagnosis appeared. I am not certain that I have seen the first edition but the Surgeon General's Library has the second edition and in that is a very definite description of the irritable heart of the soldier. However, from everything I can find on the subject, I think the first description was that of Stillé in 1863. Stillé, of course, was an old-fashioned physician, but he gave the most interesting bedside description of this condition and I think his description was about as good as anything that appeared until 1871, when J. M. DaCosta, of Philadelphia, wrote his article in the Journal of the Medical Sciences. Some people were so impressed with DaCosta's description that it has been suggested that it be called "DaCosta's syndrome." I think that is going a little too far inasmuch as two or three other people gave a description before DaCosta. At any rate, in DaCosta's 1871 description he has tables and studies of two hundred cases with some of the etiologic agents concerned such as diarrheas, dysenteries, pneumonia, rheumatic fever, excessive use of tobacco. long, fatiguing marches. It is interesting, in view of the modern trend to look on this condition as a psychoneurosis, that DaCosta merely mentioned in passing that these patients did show certain nervous symptoms such as sweating and dizziness; but there is no serious mention in any of the early papers that it might be fundamentally a psychoneurotic state. I think that is well to bear in mind because these men were excellent bedside clinicians and their descriptions are better than many present ones and I think the fact that none of them suggested that it might be a psychoneurotic condition is very important. There is one paragraph that I want to read, showing that men back in Da-Costa's time were interested in the fundamental nature of the irritable heart of the soldier.

"But in looking further, and in endeavoring to explain the nature of the malady, there is room for much doubt and difference of opinion. It seems to me the most likely that the heart has become irritable from its overaction and frequent excitement, and that disordered innervation keeps it so. But our knowledge of the nerves of the heart, and their special functions, is as yet too incomplete to say which nerves lie at the root of the disturbance. It appears most probable that the special nerve centers near the base of the heart which preside over the normal rhythmical movements of the organ are stimulated, and in considering the close connection of these ganglia with the sympathetic, we have the explanation of how their function may have been stimulated, or kept so, by irritation reflected to them from the abdominal ganglia or elsewhere. Further, the pain may be due to hyperesthesia of the cardiac nerve centers; and its radiation is readily accounted for by the connection between the cardiac nerves through the cervical ganglia of the sympathetic, from which the nerves of the cardiac plexus are derived, with the roots of the cervical nerves and branches of the brachial plexus. As evidence how the sympathetic system participates, might also be cited the obvious disturbance of the capillary circulation and the perspirations."

I think that is pretty good for 1871, because it was followed by results which supported it in World War I when a study was made at Lakewood, New Jersey, of this condition.

By the time World War I occurred this condition was known as D.A.H. by some and effort syndrome, fatigue neurosis, and neurocirculatory asthenia by others. The latter term was coined by a group of medical officers sent abroad to observe the work of Thomas Lewis.

These officers coined the term "neurocirculatory asthenia" to get away from the idea that the condition is one of pure heart disease. However, during World War I the Surgeon General appointed Major Francis Peabody, of Boston, to investigate this condition, and I was fortunate enough to be one of a group who worked with Peabody at United States General Hospital No. 9 for the best part of a year. Peabody felt that "irritable heart of soldiers" was a good old American term; it had been used in the Civil War and it was a shame to give it up. However, neurocirculatory asthenia is now the official terminology,

The papers that came out during the last war have received little attention. They were published during the course of the war when doctors were scattered everywhere, and those who were not scattered were too busy to do much reading and were not much interested in military problems. I am often surprised to find that physicians who have actually worked with and been interested in this condition are entirely unaware of any of the work carried out by this commission in the last war. Therefore, I thought this might be a good opportunity, since I was a member of that little group, to bring out some of its findings.

I think probably the first thing Major Peabody did, before most of us arrived at Lakewood, was to get Dr. C. M. Campbell, who was then at Johns Hopkins and later professor of psychiatry at Harvard, to come and study a group of these men from the psychiatric viewpoint. Dr. Campbell was very much interested and he very soon found that while they presented a certain general symptomatology, yet from his standpoint, they could be classified and put into certain categories, and those categories, those subtypes, were used throughout the study at Lakewood.

These subtypes were, first, the anxiety states. with which all are familiar today. Another subgroup was the emotionally sensitive men. These men, for the most part, had actually been at the front and had cracked up under shellfire, the strain of seeing others killed, and the strain of combat in general. They developed neurocirculatory asthenia from the wear and tear of actual warfare. Then there were the constitutionally inferior individuals. It was found there were definite groups, and very considerable groups, in which there was evidence of physical constitutional inferiority-muscular inferiority. Gay, one of our group, did strength tests on various groups of muscles of many of these men. There were three hundred men in the course of a year and there was a considerable number who showed general muscular inferiority. In some it was confined to certain portions of the body and in others there was a general muscular inferiority. There was another group who were constitutionally inferior from the psychic standpoint, and there was considerable overlapping of the two categories. Then there was the chronic invalid group, men who had been chronic cardiac complainers all their lives. These patients had been told frequently that they had heart disease; they had the impression that there was something wrong with the heart and they had had cardiac symptoms for the best part of their lives. When they came into the Army they had training and were put into active work—hiking, probably with heavy packs-and they developed neurocirculatory asthenia. They made a considerable group to add to the sum total of irritable heart cases.

I was much interested to find that when the "Medical and Surgical History of the War of the Rebellion" came out in 1879, the irritable heart of the soldier was mentioned in only one or two lines. It was stated that DaCosta had found this condition following dysentery, but it was not further mentioned in the five volume "History." But the postinfection type of irritable heart of the soldier has been recognized in every war and they are a favorable group, on the whole, because they are not constitutionally inferior. They are not chronic complainers, they do not have any particular psychologic handicap; they are relatively normal individuals who are incapacitated for active duty. Many of these men return to full duty and, on a careful review, it was found in the last war that they offered a very good prognosis, except for the group that followed rheumatic fever.

These were the subgroups of irritable heart as they were put into categories at Lakewood, and there were certain features that were characteristic of the whole group.

SYMPTOMATOLOGY

Fatigue is one of the grave symptoms. I remember patients who were so fatigable that they could hardly walk across the hospital ward. Breathless-

ness is, of course, fundamental to the syndrome. Sweating is practically universal, especially sweating in the armpits. Loss of weight, cyanotic extremities, poor color were noted; precordial pain was a common symptom, not like true angina, but more like a stitch in the side. It is not frightening, as is true angina, and it is not reflected inward away from the apex of the heart. But it is a relatively common symptom and is induced by exertion. Tachycardia, I think, has perhaps been misinterpreted in relation to the irritable heart of the soldier. Patients with real neurocirculatory asthenia have tachycardia on exertion, but no tachycardia when they are quiet. It was found at Lakewood that when patients were put at rest for a half hour in preparation for a metabolism test, the pulse came down into the eighties; the average would be about 85. So, the presence of tachycardia is not a symptom of much importance; however, the patient is aware of his heart, he is aware of the pounding, tumultuous action of his heart.

At that time (the time of World War I) Emil Goetsch recently had brought out his epinephrine test for the diagnosis of hyperthyroid states and was able to induce a positive reaction in patients with hyperthyroidism, a reaction consisting of tachycardia, elevation of blood pressure, sweating, shortness of breath and precordial pain. In many ways the reaction obtained in such patients was rather like the symptomatology of neurocirculatory asthenia. One of the first problems laid out was a consideration of possible sensitiveness of patients with neurocirculatory asthenia to epinephrine, and that investigation was rewarded with what to me was very clear cut evidence. Sturgis and Wearn did the bulk of that work and their examinations were controlled carefully by tests carried out on sixty odd Medical Corps men who volunteered for the examination. They found that, roughly, two thirds of the patients with neurocirculatory asthenia gave a positive reaction to epinephrine. That work has been largely lost sight of, but I thought it was rather interesting. It follows along the line of the suggestion of DaCosta in 1871 that in some way or other the nerve endings of these patients become sensitized; that seemed the only logical conclusion in view of the fact that two thirds of them responded in a positive manner to the injection of epinephrine. The control group yielded no positive response. This test, moreover, produced an effect that was different in time from the reaction that Goetsch found in hyperthyroid states. The positive reaction in hyperthyroidism comes rather early, as I remember within fifteen minutes after the injection. Sturgis and Wearn, on the other hand, found that their reaction was somewhat later, in from twenty-five to thirty minutes. The test is simple but it must be done with considerable care in order to rule out natural changes of blood pressure as far as possible. The patient rested for a half hour or so before the test

and then the resting blood pressure and pulse level were obtained; then .5 milligram of dry epinephrine tablet, which is equal to .5 cc. of ordinary (1 \div 1000) solution, was injected. The positive reaction consisted of elevation of blood pressure of at least 10 millimeters and elevation of the pulse ten beats or more per minute. Why some normal individuals do not give this variation in pulse and blood pressure as a result of epinephrine, I do not know, but they do not; neurocirculatory asthenia patients do. So there is something fundamental there, I think. Moreover, the group at Lakewood did basal metabolism tests and electrocardiographic studies and considered the question from various points of view, and one of the curious findings to me was that during the reaction there were frequently ectopic cardiac contractions, as one might expect, but it was also found that prolongation of the PR interval and the QRS interval was obtained in certain cases during the reaction. An actual AV block was set up in others. That seemed strange to me, in view of the fact that epinephrine is used often as a drug to relieve AV blocks.

The question of whether neurocirculatory asthenia is a psychoneurosis or something else is interesting. I think the psychiatrists, and the psychosomaticists too I believe, who look at things from a functional standpoint, have a great deal on their side in their claim that neurocirculatory asthenia is a psychoneurosis. They find the anxiety type, the chronic invalids and the emotionally sensitive. Nevertheless there are some things that cannot be explained purely on that basis. One is that when a large number of neurocirculatory asthenia patients are roentgen rayed and their chest films compared with those of normal individuals and other soldiers it is found that the average size of the heart is smaller in the neurocirculatory asthenia patient. Smith found this in Lakewood, and Isaac Starr has been talking about it between wars. Starr believes that not only do certain of the neurocirculatory asthenia patients have smaller hearts, but that the whole cardiovascular system is underdeveloped. At any rate, I think there is plenty of evidence to show that in general the size of the heart is smaller in these patients.

Another investigation carried out was an objective test for fatigue, known as Ryan's test, invented by Professor Ryan of Tufts Medical School, which consists of drawing a blunt object across the skin, with the subject under a bright light and the surrounding room in complete darkness in order to get the proper view of the reaction. The normal reaction consists of a white streak which appears in five or six seconds and lasts a varying length of time; depending on the individual, in from twenty-five to thirty seconds the white line gradually fades away. The white line persists for a longer period of time in a person who is well rested. The point is that the white line remained longer in the healthy soldier than in one with neurocirculatory asthenia.

Moreover, when healthy individuals exercised until they were comfortably tired, and were then examined, there was a relatively slight change in the duration of the white line.

However, in the case of the patient with neurocirculatory asthenia, exercise produced a sharp reduction in duration of the line. This was considered objective and true evidence of abnormal fatigability.

I am very glad to say that neurocirculatory asthenia, while it was a big problem in the last war, is not a great problem in this war, at least in general hospitals. I am not altogether sure how that came about. Of course, in the last war the period of training was so short that many men were brought in from civilian life and, after relatively little training, were sent abroad promptly into combat. Others of them were brought out of civilian life, where they were doing something in a quiet way and were put through such vigorous training as to cause them to break down in training camps. I think the protracted course of preparation in this war may have permitted some men to be put into condition to carry on, thereby preventing the breakdowns of World War I. I am sure most physicians will agree with me that an even bigger factor in weeding out these cases has been the appreciation by the induction boards of the seriousness of this problem. Those who are working on these boards have had directives of one kind or another requesting that these men be eliminated from the Army. The Army does not want them and everyone has been requested to try to keep them from being inducted. I think the difficult thing to explain is why they did not get in anyway, in view of the fact that one practically never sees this condition in civilian life. One must attempt to recognize the type of person who, when he gets into the Army, will develop neurocirculatory asthenia, and I am sure the average doctor on an induction board would not be able to do that always. I think, although I am not able to prove it, that some very good material has been lost in this screening process. I am sure that a good many people have misinterpreted what neurocirculatory asthenia is and have concluded that a man who has functional elevation of blood pressure and pulse also has the condition known as neurocirculatory asthenia. I am sure that has happened in a number of cases because such cases presented themselves in Maryland before I went into the Army. Functional disturbances of pulse and blood pressure under emotion is not neurocirculatory asthenia; and if all the men are rejected for the Army who react in that manner doubtless some men will be weeded out who would not subsequently have developed neurocirculatory asthenia. On the other hand, I believe that this very careful screening has discovered a large proportion of potential neurocirculatory asthenia cases and has prevented the great burden of taking care during the war and

after the war of numbers of men who otherwise would have become liabilities to themselves and liabilities to the government.

So I must say that I rather look on this condition as due to one of a number of psychoneurotic tendencies in many cases, but not in all, plus a fundamental disturbance of the physiology of the individual. For some reason or other the sympathetic nerve endings are involved, and apparently it is the sensitiveness of the sympathetic nerve endings that causes the symptomatology that I have been discussing. I think that so far as the management of these cases is concerned, the psychosomaticists are important, and the general practitioner is important as well. It certainly is not strictly a cardiac problem, but it is a problem that involves many fields of medicine and it is a condition that has not been fully clarified.

Army Medical Center.

SOME REMARKS ON CORONARY SCLEROSIS

ROBERT UHLMANN, M.D.

KANSAS CITY, MO.

Arteriosclerosis is a degenerative process of the arteries. It is not a necessary companion of old age. Sclerosis frequently has its inception earlier than is commonly thought. Anitschaff, e.g., found at least some formation of sclerotic plaques in 83 per cent of patients between the ages of 20 and 30 years, while advanced sclerosis was found in 21.4 per cent over 40 years.

The degeneration is probably not due to any one factor. Heredity is of greatest importance because of its influence on temperament, on personality and on the vitality of the arteries. Focal infection plays but a minor role, if any, otherwise, the great mass experiment of the last twenty-five years with its removal of all suspected teeth and tonsils would have shown clearer results. Metabolic disturbances, too intensive a life in middle age and especially nervous unbalance play a great and often avoidable part in the development of sclerosis. One cannot explain the predilection of the disease for isolated sections of the body, e.g., sometimes for only the arteries of the legs. This is not caused by overactivity of these parts.

Recent studies indicate that food may be a factor. Extensive use of concentrated fats is not natural for humans. Herbivora live on vegetables, carnivora on meat (meat of hunted prey is mostly lean). Only the human family uses concentrated fats such as cream, butter, bacon and eggs in large amounts, and in the last fifty years, probably more than ever. That shows the disadvantage which the increasing high standard of living may have. Experiments' show that in depancreatized dogs, a disturbed fat metabolism is frequently accompanied by sclerosis. Herbivora (rabbits, guinea pigs) cannot excrete cholesterol; they easily develop artero-

sclerosis when fed this sterol. There are many individual cases (for instance two epileptic children on ketogenic fat-rich diet, with small atheromatous plaques in arteries) and many conditions in which there is an increase of lipids simultaneously with a tendency for sclerosis (xanthoma tuberosum, obesity, diabetes, hypothyroidism, old age, tendency to pyknik type).*

The increase of serum cholesterol in patients with coronary disease is significant. Steiner and Domansky³ found the cholesterol level of fifteen patients with coronary sclerosis to average 355 mg. per 100 cc. of blood, while fifteen normal patients showed an average of 255 mg. Willius4 found an increase of some lipoid fraction in 78.5 per cent of 107 cases of coronary disease. Women have sclerosis less frequently than men, possibly because the whole cholesterol metabolism has to be on a more adequate level to overcome the lipid mobilization in pregnancy and menstruation. Leary's experiments of rabbits showed that ingested cholesterol is esterified in the liver and that reticulo-endothelial cells take up the excess esters and invade the intima of the arteries.

Although the human body is able to synthesize cholesterol, it gets its main requirements in its food. Schoenheimer and Sperry⁶ showed that phytosterols (the sterols of the plants which are closely related to cholesterol) are absorbed very poorly through the intestinal wall. Thus the use of vegetable oil may considerably decrease the amount of absorbed sterols. After the age of 40, only a third or a fourth of the caloric demand should be supplied by fat. A smaller proportion is not advisable because the amount of food given as a substitute would be too large, especially for a sclerotic patient with his tendency for abdominal discomfort. How strictly this reduction of fat has to be carried through may be shown in "fat tolerance tests." Blotner7 has shown with such tests that cholesterol in slender people remains practically unchanged for eight hours following the ingestion of 100 grams of fat, while in all obese persons a rise of cholesterol takes place. Feinblatt⁸ points out that in very thin people there is, after a fat meal, a rise especially of the noncholesterol lipids, lasting about six hours.

Fat tolerance test: Evening meal should be fat free soup and some toast. The breakfast should be 400 cc. of cream, 20 per cent, two pats of butter, one egg, some coffee and one slice of bread, eaten within fifteen minutes. The blood should be examined for cholesterol before test meal and four and six hours afterward. There is no doubt but that the accuracy of the fat tolerance test could be greatly improved with the use of a duodenal tube, with determination of cholesterol and total lipids in two

hour intervals; but it was felt that this test should be kept as simple as possible for practical purposes.

If the chemical determination is accurate, a repeated increase of more than 20 points in the cholesterol level, four and especially six hours after the fat meal, indicates insufficiency of the lipid metabolism. This limit of 20 points is arbitrary and even if higher does not point to any disease. The fat tolerance test should differ only between two groups of people: those who easily clear the blood of lipids and those who do that with more difficulty. If one assumes that a frequent and sustained high level of blood cholesterol is detrimental to arteries. then a decrease of the fat intake is indicated for the second group.

Such a decrease is also advisable from another point of view. Zuelzer⁹ extracted a substance from the liver which increases the muscular activity of the heart, dilates coronary arteries and has nothing to do with the unspecific effect of histamine and cholin. If this "Eutonon" is actually a physiologic product of the liver, improvement of the liver function with a high carbohydrate-low fat diet may be of importance for the course of coronary disease.

One function of the liver is the conversion of fat into phospholipids (lecithin). They in their turn are converted into more and more unsaturated fatty acids, the oxidation of which is facilitated greatly in this way. In a diseased liver, a principle disturbance of the fat metabolism takes place. There is more neutral fat and less lecithin in the liver and the fatty acids are less unsaturated. The presence of a congested liver alone may explain the increase of lipids in the blood of heart patients and is sufficient reason for decrease of fat intake, especially in periods of heart decompensation.

The literature on the treatment of sclerosis, especially on coronary sclerosis, is so comprehensive that a detailed description seems to be unnecessary. The success of medical treatment is bound to be limited and will vary with the nervous make-up of the patient as well as with the actual damage done to the coronary arteries and the heart muscle. If there is massive infarction, the patient has to have absolute bed rest for from six to eight weeks. In milder cases, the rest should be interpreted more liberally. Permission to use a commode, later, sitting in a chair, will not do any harm if motions are executed very slowly. Sitting on the edge of the bed for urination is less strenuous than an annoying retention catheter with simultaneous sulfa medication. One should remember that there is quite a difference between rest and relaxation. The coronary patient needs both. The sicker the patient, the more rest he needs. The milder cases need relaxation just as much and are actually harmed by too strict a regime. The thought of their "heart spell" will upset the effects of the whole "rest cure."

Many coronary attacks occur during the night. This is due to the influence of the nervous system.

^{*}A separated consideration of simple lipids (neutral fats) and compound lipids (cholesterol, etc.) is difficult. The approximate level of all lipids in the blood may be measured with the determination of cholesterol which is often roughly proportional to the total amount of lipids.

The action of the sympathetic nerve is more prevalent during the day. The normal activity calls for fast increase of blood sugar, for a quicker heart beat, functions which are stimulated by the sympathetic nerve. The night is the time for assimilation, for regeneration and storage. Sugar has to be converted into glycogen, the heart beats slower, the blood vessels relax. All these phenomena occur during sleep and are functions of the vagus nerve. This nocturnal reign of the vagus nerve has decisive disadvantage in some instances. An illustration is the "night pain" of the ulcer patient, and another one is the constriction of the coronary arteries during the night. The vagus nerve dilates the arteries of the whole body with exception of the coronary arteries, which it constricts. That puts coronary disease in the same class as ulcer ventriculi and asthma. In all of them a vagosomatic disturbance plays some part. Therefore, addition of atropine sulphate (gr. 1/150) to the usual coronary medication is indicated, especially during the night. Atropine may be given frequently, but only in moderate dose because of the possible increase of the heart rate. I experimented with intramuscular injections of atropine oleate in oil* (1 mg. in 1/2 cc.) to get a more lasting, moderate effect on the vagus nerve. Atropine oleate is a real solution (not an emulsion like adrenalin in oil) and serves the purpose mentioned, although the absorption is still quicker than desired.

The effect of intravenous aminophyllin on coronary arteries is known. The clinical results of aminophyllin given orally are not striking because the blood level may not be high enough to produce a clear effect on the coronary arteries. Enterocoated aminophyllin tablets, especially given after meals, will be absorbed so gradually that the expected effect will be nullified. Aminophyllin should be taken in *plain* tablets, *before* meals, with hot water. This medication probably is of special advantage in acute and subacute coronary disease; besides the effect on the heart, the diuretic action is beneficial.

The coronary circulation depends greatly on the mean pressure in the aorta and consequently on the strength of the heart muscle. The weakness of the muscle following coronary insufficiency is the main cause of a further deterioration in the coronary circulation. It is important in such cases to steady the heart muscle but the choice of medication has to be such that the power of the systole is only moderately increased and that there is not much inhibiting influence on the conductive system. Eutonon or small amounts of intravenous strophantin K (.15 to .25 mg.) serve this purpose.

The annoying shoulder and chest pain of chronic coronary insufficiency is frequently best relieved with nicotinic acid. Experiments have shown that

even large amounts of intravenous nicotinic acid have no effect on a normal electrocardiogram on respiration or on metabolism. Unpleasant reactions such as nausea or dizziness are rare. The lowering of the blood pressure is insignificant and transient. It is known that the cerebral blood vessels get slightly dilated. This indicates the use of nicotinic acid in beginning sclerosis of the brain. It is not yet proven that nicotinic acid dilates directly the blood vessels within the chest and abdomen, while the dilation of the arterioles of the skin is beyond doubt. There is a special increase of the blood flow to the face and the upper extremities, causing a 1.5 C. increase of skin temperature lasting from thirty to forty-five minutes. The blood flow to the legs is increased to a lesser degree. If one recalls the beneficial influence of a hot arm bath on coronary pain, he understands that nicotinic acid may improve the coronary circulation indirectly.

Some assume that nicotinic acid acts over the vagus nerve. This is erroneous because the effect is not counteracted by atropine. Nicotinic acid has an outspoken acid reaction and increases the acidity of the stomach even if given intravenously. It should not be given to patients with ulcer. The nicotinic acid effect reminds one of histamine, which dilates arterioles, the capillaries and stimulates gastric secretion. Bean and Spies10 think that nicotinic acid may function by liberating histamine in the tissues. The relief nicotinic acid will give in coronary insufficiency will naturally vary according to the existing anatomic damage. A constant intravenous drip has been recommended for angina pectoris.11 Because intravenous injections of rapidly absorbed medicines (and nicotinic acid belongs to this group) seem to be unnecessary. patients with chronic coronary disease may get 25 mg. of nicotinic acid orally every hour; if there is still pain, even every half hour. After from three to four days, a two hour interval is frequently satisfactory. I gave it to forty patients, all of whom had already received the usual treatment (aminophyllin, phenobarbital). While the results varied. more than 50 per cent (twenty-two patients) felt an immediate marked relief, more outspoken than after any other medication. Eleven more patients had advantage from nicotinic acid, although the result was not so decisive. It is just as difficult to evaluate for nicotinic acid as it is for nitranitol. whether it gives only relief or if it means an actual improvement of the disease. Most of those patients who had relief with nicotinic acid felt stronger and were more able to walk without getting distress. On the whole, the use of nicotinic acid is a great help in handling patients with chronic coronary disease. Nicotinamide frequently is considered a full substitute of nicotinic acid, but it has no effect on blood vessels and cannot be used for this purpose.

Frequently some food intake, easily digestable.

^{*}G. A. Breon furnished the atropine oleate for these tests and I want to acknowledge my thanks for the time and the cooperation given by the manufacturer.

will relieve coronary pain. A hot, strong, fat poor broth is an old remedy for angina pectoris, and amazingly helpful in some cases.

Distress in shoulder and arms is a frequent complaint in coronary disease. It is often only a radiating pain. This radiation is explained by the fact that impulses from both the shoulder and cardiac sympathetic fibers enter the same dorsal ganglia (the fourth to the sixth). However, there often is a combination of coronary insufficiency and real arthritis of the left shoulder. The existence of this arthritis can be concluded from the symptoms (pain on motion, especially on slipping in overcoat), or from roentgen ray pictures. It frequently is helped by diathermy and graduated physiotherapy. Good results are achieved with hot showers. While using these quite frequently a salutary influence is noticed on the basic coronary disease, an experience which stimulated the interest in the use of such a hydrotherapy for coronary disease.

There is no general agreement about the influence of heat on the intrathoracic blood vessels, especially on the coronary arteries. It is known that cold may induce spells of angina pectoris and that hot compresses on the precordium or hot hand baths frequently relieve distress from coronary insufficiency. Hauffe12 stresses that the blood vessels of the chest and abdomen react the same way as the blood vessels of the skin. When a hot shower is used on a heart patient, one must avoid a strong and sudden beginning of the hot water to prevent a primary contraction of the blood vessels. The shower should be started with about 100 F. This should then be increased until the patient gets the sensation of hot water (about 106 F.). Good results were obtained only when skin erythema was seen. The accumulation of heat in the body must be avoided because this causes an increase of oxidation and of the heart activity. But a shower can be considered as a "partial bath" and will cause much less accumulation of heat than a full bath. It is less of a strain if started slowly.

The careful selection of patients for such showers is of great importance. Excluded are all who appear fairly sick, those with acute coronary occlusion and patients with any decompensation or with hardening of cerebral arteries. This treatment should not be continued if it causes unpleasant symptoms such as dizziness. I am aware of the reasons which make one hesitate to use these hot showers, but I never saw any harmful effects. The risk is slight when the cases are strictly selected. One great advantage is that this procedure is simple to use at home. The patient is made to sit in a bath tub and someone directs the hand shower onto his shoulders and back. The water is started with moderate impact at about 100 F., then increased to about 106 F. The bath, which may last only a few minutes, should not be followed by a cold douche but by bed rest of at least ten minutes

during which time the patient should be covered lightly. Some patients may stand to give them selves a hot shower. Light massage to the whole body, using soap, is advised. In many cases the pain in the chest and arm disappears after these showers and the patients will feel, in the long run. stronger and better.

SUMMARY

- (a) A diet poor in fat may be one factor in prevention of arteriosclerosis.
- (b) Nicotinic acid in frequent doses is of great help for pain in chronic coronary disease.
- (c) In selected cases of coronary disease, hot shower baths seem to be helpful.

627 E. 63rd Terrace.

BIBLIOGRAPHY

- Anitschaff: 2. Congr. de Soc. Int. de Path.
 Dragstedt, L. R.: J. A. M. A. 114:29 (Jan. 6) 1940 3. Steiner, A., and Domansky, B.: Arch, Int. Med. 71:397 (March) 1943.
- 4. Willius, F. A.: J. Iowa M. Soc. 31:563 (December) 1941
- 5. Leary: Mod. Conc. Cardiac Dis. 11:10, 1942.
- 6. Schoenheimer, R., and Sperry, W. M.: J. Biol. Chem. 110:655 (August) 1935.
- 7. Blotner: Medical papers, dedicated to Dr. Christian. 1936, Baltimore, Waverly Press, Inc. 8. Feinblatt: Am. J. Digest. Dis. 8:260, 1944.
- 9. Zuelzer, G.: The Heart Hormone "Eutonon," Med. Klin 23:1502, 1927.
- 10. Bean, W. B., and Spies, T. D.: Am. Heart J. 20:62 (July) 1940.
 - 11. Neuwahl, F. G.: Lancet 2:419 (Oct. 10) 1942
 - 12. Hauffe: Med. Clin. 8:300, 1926.

CASE REPORTS OF BARNES HOSPITAL

CLINICAL AND POSTMORTEM RECORDS USED IN WEEKLY CLINICOPATHOLOGIC CONFERENCES AT BARNES HOSPITAL, ST. LOUIS

W. BARRY WOOD, JR., M.D., and ROBERT A. MOORE, M.D., Editors

CASE 55

PRESENTATION OF CASE

O. W., a Negro laborer, aged 24 years, entered the San Francisco Hospital on May 29, 1942, and died on February 4, 1943.

Chief Complaints.—Pain in the chest.

Family History.—No similar illness had occurred in members of the family.

Past History.—The patient was born in South Carolina but at an early age moved with his family to California and had spent most of his life in Sacramento. Other than the usual childhood diseases there had been no significant illnesses. In July 1941 he went from Sacramento to Imperial Valley and shortly thereafter to Delano where he harvested fruit. In the latter part of October 1941 he moved to Pismo Beach.

Present Illness.—On arrival at Pismo Beach the patient began to experience generalized aching pain and a short time later he had a mild shaking chill. Almost immediately thereafter he began to cough and developed severe pain in the right chest which was accentuated by the coughing and on deep inspiration. He remained in bed for ten days but his condition grew steadily worse and he therefore returned to his home in Sacramento.

On November 4, 1941, he was admitted to the Sacramento County Hospital where he remained for twenty-seven days. Physical examination revealed the temperature to be 101 F. The head and neck were not remarkable. Signs of a large pleural effusion were detected on the right and over the lower extremities several tender raised erythematous lesions resembling erythema nodosum were noted. The presence of the pleural effusion was confirmed by roentgenograms and the chest was tapped on two occasions. The character of the fluid was not described. Repeated sputum examinations were negative for acid-fast bacilli. During his hospital stay the patient lost 25 pounds in weight, the skin lesions gradually disappeared and he felt much improved although he continued to have pain in his chest. Except for a chronic, slightly productive cough and occasional attacks of mild pleuritic pain, his improvement continued for the next five months. In May 1942, three weeks prior to entering the San Francisco Hospital, the patient again developed malaise, and the cough, which became more severe, produced thick yellow sputum, occasionally streaked with blood. His appetite became poor and he lost 15 pounds up to the time of admission. For three days dyspnea had been marked and sweats occurred nightly.

Physical Examination.—Temperature was 99.4, pulse 76, respiration 20 and blood pressure 122 70. The patient was a well developed, well nourished Negro who did not appear ill. The skin was clear. The head and neck were not remarkable. Several small shotty lymph nodes were palpable in the cervical, axillary and inguinal regions. The thorax was symmetrical but respiratory movements showed a lag on the right and the chest wall was sensitive to palpation. Below the third rib on the right, the percussion note was dull and breath sounds, voice sounds and vocal fremitus were diminished over this area. Above the area of dullness an occasional crackle could be heard. The heart showed no abnormalities. In the right upper quadrant of the abdomen a tender mass thought to be liver extended 3 centimeters below the costal margin. Examination otherwise was normal.

Laboratory Findings.—Blood count: red cells 4.500,000, hemoglobin 80 per cent, white cells 7,800, differential: segmented forms 66 per cent, lymphocytes 34 per cent. Urinalysis: normal. Wassermann and Mazzini reactions, negative. Serum proteins: 6.6 gm. per cent. Sputum: repeatedly negative for acid-fast bacilli. Tuberculin skin test: (first strength) strongly positive. Roentgenograms of the chest showed a diffuse density obscuring the parenchyma of the right lung. The left lung appeared to be clear.

Course in Hospital.—Soon after admission a thoracentesis was attempted on the right but no fluid was encountered. A triple density roentgenogram of the chest showed considerable infiltration of the right lower lung field and thickened pleura surrounding the right lung. During approximately nine months of hospitalization the temperature usually ranged between 100 and 101 F. with occasional spikes to 102 F. The white blood count rose as high as 21,000 with "stab" forms 68 per cent, segmented forms 8 per cent, lymphocytes 24 per cent. The urine on one occasion showed 1 plus albumin. The patient continued to cough copious quantities of yellow sputum which frequently was bloody. During the sixth month in the hospital a mass was noted over the left chest wall which was neither painful nor red. By aspiration, 155 cc. of thick vellow pus were withdrawn from it which, on routine culture, showed no significant organisms. One month later this abscess broke and drained until death. Other similar abscesses appeared in the same area but subsided after aspiration. Five days prior to death the left leg became swollen and there was tenderness along the course of the femoral vein. The following day similar changes occurred in the right leg. From this time the course was rapidly downhill and the patient died on February 4, 1943.

CLINICAL DISCUSSION

Dr. Harry Alexander: This case is open for diagnosis and discussion. Dr. Wood, what do you believe this disease to be?

Dr. W. Barry Wood, Jr.: Taking into consideration such factors as the environment and history of the patient and the course of the disease, I should think that he was afflicted with the fungus infection, coccidioidal granuloma of the lung.

DR. ALEXANDER: Any other diagnosis? Does everyone agree that this is coccidioidal infection? There are two forms of the disease, the primary pulmonary form, coccidiodomycosis, and coccidiodal granuloma. I have asked Dr. Morris Moore if he would demonstrate the causative organism and give us details con-

cerning it.

Dr. Morris Moore: The organism is a saprophyte found in the soil and probably on decaying vegetation. There is a record of nine students on a field trip who turned over a rock in hunting for a snake. Of the nine, I believe seven contracted the disease, apparently from the inhalation of spores of the organism which were present under the rock. As far as I know the disease cannot be transmitted from man to man. An example of an infection in the laboratory, however, has been reported where a worker apparently inhaled spores from an open culture. The disease can be contracted through the inhalation of spores or cells since the fungus is air-borne. The lungs are attacked primarily. In tissue, the organism consists of a round or spherical cell which measures in its young stage from approximately 3 to 7 micra in diameter and when mature measures up to a reported diameter of approximately 80 micra. This organism in tissue reproduces by a process known as endosporulation. In other words, the spores are produced within the cell known as the mother cell. When mature, the wall of the mother cell ruptures, liberating the endospores. It is easy to understand, therefore, how the organisms can become widespread and produce a miliary type of infection. The spores within the mother cell may number up to many hundreds. These spores, known as

chlamydospores, are distributed through the blood stream and through the lymph channels to other organs. Skin manifestations in coccidioidal granuloma are not uncommon. They may arise either as primary cutaneous manifestations resulting from traumatic infection or they may be secondary to a systemic involvement. In the skin the leukocytic response is not common. At least the abscesses characteristic of blastomycosis are not usually seen in cutaneous coccidioidal granuloma.

Dr. Alexander: This disease is endemic in California and neighboring states. It is interesting to trace this man's travel. Would you point this out on the map, Dr. MacFarlane?

Dr. WAYLAND MACFARLANE: The patient went from Sacramento, California, to the Imperial Valley, and shortly thereafter to Delano, and from there to Pismo Beach. Imperial Valley is outside the endemic zone, but Delano is in the midst of it. Other endemic areas are in Arizona, Southern Utah, Western Texas and New Mexico.

Dr. Alexander: Clinically, this pulmonary form has certain characteristics. Dr. Blattner, would you tell us about the sequence of events in an infection of the primary pulmonary form? Which symptoms are

most prominent?

DR. RUSSELI J. BLATTNER: The disease apparently occurs as an endemic disease in rodents. The spores of coccidioides are present in the dust. The dust is stirred up and an individual inhales the infectious organism. The two cases I saw were similar to those Dr. Moore mentioned. Two soldiers went out on maneuvers and subsequently contracted the disease. They showed signs of illness in six or seven days. There were symptoms of irritation of the lung. Some patients raise sputum, and others develop signs of pleural involvement. Some have the primary allergic manifestations, erythema nodosa lesions of the skin, and arthralgia. The physical signs aside from fluid in the pleural cavity were not prominent. It was predominantly a bronchitis.

DR. ALEXANDER: The sequence and frequency of these symptoms and signs taken from Goldstein's article are as follows: Fever 100 per cent, pleural pain 95 per cent, cough 90 per cent, sore throat 40 per cent, chills 65 per cent, physical signs 35 per cent, erythema nodosa 5 per cent, arthralgia 30 per cent, pleurisy with effusion 4 per cent and hemoptysis 20 per cent. The incidence of erythema nodosa has been reported as high as 20 per cent. The disease was called valley fever or "the bumps." In the first epidemic there was but a 5 per cent fatality rate. The sex ratio showed a higher percentage of cases among women. Malaise was also described. Apparently the patients at first showed signs of fever, cough, chills, generalized aching and headache. Pleurisy with effusion occurred in 5 per cent. Dr. Goldman, would you explain these films for us, and particularly discuss the lesions of the lung?

DR. ALFRED GOLDMAN: These roentgenograms taken

of a patient from Homer Phillips Hospital showed marked hilar lymph node enlargement. There is also a small cavity seen in the parenchyma of the lung with a thin cystlike wall and with very little cellular reaction about it. This is characteristic of the cavities seen in coccidioidomycosis. The earliest lesion is pneumonic infiltration in the lung not unlike that seen in bronchopneumonia or in tuberculosis. Pleurisy is common in the early lesion, sometimes associated with pleural effusion. The late stages of the disease in the lungs are characterized by a diffuse granulomatous lesion often associated with hilar enlargement. The early appearance of nodes in the hilus usually indicates a poor prognosis.

Dr. Alexander: Could you differentiate between coccidioidal granuloma and tuberculosis if you did not know where the man came from?

Dr. Goldman: Tuberculosis would simulate every

symptom that this patient had, including the cold abscesses which occurred at the end of his disease.

Dr. Alexander: Thus, one would be most suspicious

of tuberculosis?

DR. GOLDMAN: Yes. Erythema nodosa may occur in early primary tuberculosis. Two points against the diagnosis of tuberculosis are the absence of tubercle bacilli in many sputum examinations, and the fact that the lesion remained in one lung in spite of a long illness. Another distinction is that the pus from cold abscesses in tuberculosis is thin, whereas the pus in this case is described as thick and yellow. Dr. Alexander: What happens to the cavities in coccidioidomycosis?

DR. GOLDMAN: The cavities may heal spontaneously or they may go on for many months without apparent harm to the patient.

Dr. Alexander: Do tuberculous cavities heal spon

taneously?

Dr. Goldman: Yes, they may with rest.

DR. ALEXANDER: Dr. Blattner, is it presumed that the coccidioidal granuloma this man had was merely an extension of the lesion or a secondary infection?

DR. BLATTNER: It was an extension of the lesion by

way of the lymph vessels.

DR. ALEXANDER: The incidence of fatal coccidioidal granuloma is very small. Dr. Wood, what are the fig-

Dr. Wood: About one out of every five hundred recognized cases results in granuloma that is fatal. DR. ALEXANDER: Dr. Wood, what organs are involved

in coccidioidal granuloma?

DR. Wood: The lungs, the skin, and the meninges may be involved; bone lesions are quite striking. May we see the pictures of the bone lesions at this point? These pictures were issued by the Army Air Force and it is interesting to note that of the seven fatal cases reported, all patients are from Negro troops.

Dr. Alexander: This disease occurs most frequently

in dark-skinned individuals, Western Indians, Negroes

and Mexicans.

DR. RICHARD WEISS: The skin lesions in coccidioidal granuloma are usually of the verrucous type. The organisms localize in the skin and the lesions show miliary abscesses often mistaken for blastomycosis. One can make an accurate diagnosis only when one finds the organism. I have seen two cases in Chicago, but none in this city. Dr. Sale, I believe, had a patient with such a bone lesion.

Dr. Llewellyn Sale: That particular case was the patient of Barrett Taussig. The patient had a painful knee and the physical signs of pleural effusion. The organisms of coccidioides were demonstrated in fluid

drawn from the knee.

Dr. Alexander: The organisms are isolated easily in the laboratory?

Dr. Morris Moore: Yes, and the skin test has been found to be fairly accurate in most cases. It resembles the tuberculin test.

Dr. Alexander: As a final consideration, what is the treatment for this disease?

DR. MORRIS MOORE: There is no specific treatment

other than rest and adequate diet.

Dr. Alexander: The administration of coccidioidal serum has proven to be effective in two or three cases. However, there was not a case with skin manifestations in this group. One patient was treated by surgical incision. The lesions were removed and did not appear

again.

DR. ALEXANDER'S DIAGNOSIS

Coccidioidal granuloma.

ANATOMIC DIAGNOSIS

Coccidioidomycosis with involvement of lungs.

PATHOLOGIC DISCUSSION

Dr. Robert Moore: We are indebted to Dr. James

McNaught of the Department of Pathology, Stanford University Medical School, for the opportunity to present this case,

There were extensive lesions in the lungs and the organisms described by Dr. Morris Moore were identified easily. There is little more to add to the clinical discussion. I might emphasize the high incidence of primary infection in endemic regions; the rarity of death from the primary infection and the fact that contact infection from man to man does not occur.

CASE 56

PRESENTATION OF CASE

The patient was a 48 year old Jewish housewife who entered the Barnes Hospital on April 23, 1941, and died on June 15, 1941.

Chief Complaint.—Weakness and fever of ten months' duration and partial aphasia for previous twenty-four hours.

Family History.—Mother died of nephritis at the age of 56.

Past History.—At the age of 12, the patient suffered an attack of acute arthritis involving both knee joints. This illness kept her confined to her bed for six months. At the time of each of her two pregnancies, 1917 and 1923, she was bothered by swelling of her ankles and was told that her urine contained albumin. The history makes no mention of dyspnea associated with the pregnancies. In 1926 the patient was admitted to the Barnes Hospital because of persistent albuminuria. At that time a diagnosis of chronic pyelonephritis was made, although the only positive findings were albuminuria (1 gram per liter), hypertrophied tonsils and roentgen ray evidence of infected teeth. There was no hypertension and retrograde pyelograms were normal. The patient apparently had no further difficulty until May 1932 when she was admitted to the Barnes Hospital with a fractured skull sustained in an automobile accident. Her convalescence from this injury was uneventful and urinary examinations at that time showed only a trace of albumin. Again, the blood pressure was normal. Three years before admission, she was bothered by menorrhagia and metrorrhagia and finally entered the St. Luke's Hospital where a complete hysterectomy was performed. Following the operation, her health seemed to be quite normal until the onset of the present illness.

Social History.—The patient was born in St. Louis and had always lived in that city. She had been married for thirty years to a physician.

Present Illness.—Six months after her operation at St. Luke's Hospital, and ten months before admission, the patient first noted low-grade fever and at that time developed a small, tender nodule in the left calf. A few days later, she experienced severe knifelike pain in the left upper quadrant, noticed small petechiae on her skin and developed diplopia. The patient was taken to the Jewish Hospital where she was found to have fever, petechiae, paralysis of the left external rectus muscle, presystolic and systolic murmurs heard at the apex of the heart, a palpable spleen, hematuria,

and a red blood count of 1.9 million. A tentative diagnosis of subacute bacterial endocarditis was made but blood cultures taken on eleven consecutive days were all negative. The patient was given blood transfusions. The petechiae gradually disappeared and she was discharged finally from the hospital. She continued, however, to complain of fever and malaise and she failed to regain her strength. She was given liver and iron therapy for her anemia.

Seven months before admission to Barnes Hospital she was again hospitalized at the Jewish Hospital because of increasing prostration and higher fever. Again, the signs were much the same and repeated blood cultures were negative. Four months before admission, prostration and fever became more marked and, for the first time, the patient complained of joint pains and developed a peculiar skin rash which had some of the characteristics of erythema multiforme. The patient was examined frequently in her physician's office and was found to have intermittent hematuria, pyuria and cylindruria at that time. The skin rash gradually subsided and the patient seemed to improve.

On the night before admission to Barnes Hospital, the patient suddenly developed a partial aphasia. She was admitted on the G. U. Service where a cystoscopy was performed and a diagnosis of chronic hyperplastic urethritis and trigonitis was made. Urine cultures were taken and showed a growth of nonhemolytic streptococcus. The patient was found to have a nonprotein nitrogen of 53 mg. per cent and therefore was transferred to the Medical Service.

Physical Examination.—Temperature was 38.2 F., pulse 92, respiration 22, blood pressure 120/76. The patient was a well developed, rather obese white woman who appeared weak and somewhat listless but not acutely ill. A few small petechiae were found in the skin. There was paralysis of the left external rectus muscle. The mucous membranes appeared to be slightly pale. The eyegrounds were normal. Tonsils were large and ragged and all of the upper teeth had been removed. There was no generalized glandular enlargement. The heart was slightly enlarged to percussion and there was a short, rough presystolic murmur at the apex and a longer systolic murmur. The second pneumonic sound was accentuated. The lungs were entirely clear. A lower midline scar was seen on the abdomen and there was a marked diastasis of the rectus muscles. The tip of the spleen was felt at the costal margin. Pelvic and rectal examinations were not described. No mention was made of clubbing of the fingers or soreness of the finger tips. The neurologic examination was normal except for the paralysis of the left external rectus muscle and a mild nominal aphasia.

Laboratory Findings.—Blood count: red cells

2.21 million, hemoglobin not done, white cells 5,850, differential: eosinophils 1 per cent, juveniles 1 per cent, "stab" forms 32 per cent, segmented neutrophils 24 per cent, lymphocytes 37 per cent, monocytes 5 per cent. Urinalysis: reaction acid, specific gravity 1.005, albumin 2 plus, sugar negative, microscopic: a few red cells and white cells. Blood Kahn test, positive (repeated later and found to be negative). Blood chemistry: blood sugar 90 mg, per cent, nonprotein nitrogen 56 mg, per cent, plasma proteins 7.8 grams per cent with 3.3 grams of albumin and 4.4 grams of globulin, formol gel test positive. Gastric analysis: no fasting free hydrochloric acid thirty minutes after histamine. free acid 5 degrees, total acid 25 degrees. Spinal fluid examination: dynamics normal, Wassermann reaction negative, colloidal gold curve 222222110, total proteins 25 mg. per cent, Pandy test, trace, cell count none. Electrocardiogram normal except for sinus tachycardia. Roentgenographic examinations: pyelograms normal; chest film: heart was slightly enlarged to the left; hilus shadows were prominent and the lung markings were very coarse. "These changes are the result of vascular congestion."

Course in Hospital.—The patient had intermittent fever while in the hospital and at times she complained of nausea, joint pains and abdominal pains. On the fourteenth hospital day, she experienced sharp pain in the left chest, exaggerated by breathing. Examination of the lungs at this time was normal. The following day she had an attack of rather acute epigastric pain which gradually subsided. On the eighteenth hospital day, a patchy erythematous rash was noted over her cheeks and upper arms. The rash was present for only a few days and faded rather rapidly. The rash reappeared on the forty-third day. On the forty-eighth day, the left knee became painful and slightly swollen and rales were heard at both lung bases. Roentgen ray of the chest at that time showed no change. The following day headache became more severe and there was projectile vomiting, a moderately stiff neck, and transient ankle and patellar clonus. Examination of the eyegrounds showed fresh retinal hemorrhages and haziness of both optic disks. Urinary suppression was noted and the patient became more stuporous and finally, on June 15, she died.

During her stay in the hospital, the patient's urine showed large amounts of albumin, a consistently low specific gravity and considerable numbers of both red and white cells. The white blood count remained between four and eight thousand. Four blood cultures were taken and all were reported as sterile. Agglutination tests for brucellosis were negative. The patient was treated only by symptomatic measures which consisted of blood transfusions and intravenous injections of vitamin B complex.

CLINICAL DISCUSSION

Dr. W. Barry Wood: I need hardly point out that

this is an extremely complicated case which raises some difficult diagnostic problems.

Dr. MacFarlane went through the history rapidly because of limited time, but I think it is important to point out that this patient had a disease which in volved many organs: the skin, blood vessels, brain, meninges, spleen, pleura, probably the peritoneum, the joints, the heart, the lungs, the bone marrow and the kidneys. We are faced with the problem of diagnosing an illness which has been progressive and, at the end of ten months, fatal, and which has involved all these organs. Perhaps it will simplify our discussion if we list the various possibilities first and then consider them one by one. Are there suggestions as to what this disease might have been?

DR. BARRETT TAUSSIG: This patient presented the signs of an endocarditis with embolization. I would suggest two possibilities: bacterial endocarditis and nonbacterial endocarditis.

Dr. Wood: What do you mean by the latter term?
Dr. Taussic: What I had in mind was the sterile endocarditis which occurs in Libman-Sachs disease.

Dr. Wood: Nonbacterial verrucous thrombotic endocarditis, Libman-Sachs disease. What is that disease? Where does it belong in the classification of disease?

DR. TAUSSIG: It is fairly well recognized as merely one aspect of the disease known as disseminated lupus erythematosus.

Dr. Wood: That is your suggestion as a diagnosis? Dr. Harford, what is your opinion?

DR. CARL HARFORD: I think bacterial endocarditis is the more likely diagnosis.

Dr. Wood: That certainly must be considered. Any other suggestions?

Dr. Edward Massie: What about subacute bacterial endocarditis in the bacteria-free stage, described by Libman in 1913?

DR. Wood: This patient had fifteen recorded blood cultures in the hospital and many more in Dr. Strauss' office and all were negative. If we diagnose her disease as subacute bacterial endocarditis, we would have to assume that it was in the nonbacterial stage. Any other suggestions?

Dr. Carl Moore: I am embarrassed to make this suggestion, but whenever one has so many organs involved one has to consider periarteritis nodosa.

Dr. Wood: We have three suggestions: subacute bacterial endocarditis, disseminated lupus and periarteritis nodosa. Does anyone have another?

Student: Henoch's purpura.

Dr. Wood: Henoch's purpura could explain all the clinical manifestations. How about the cardiac murmur? The patient had a history which suggested rheumatic fever.

Student: The murmur might be rheumatic or it might be merely a hemic murmur.

Dr. Wood: Dr. Massie, how often does a presystolic hemic murmur occur?

Dr. Massie: Never.

 $\ensuremath{\mathsf{Dr}}.$ Wood: Never, except in one blood disease of Negroes.

Dr. Massie: It is not really a presystolic murmur in sickle cell anemia, but it is frequently called that.

Dr. Wood: Can you rule out rheumatic endocarditis on the basis of the history?

Dr. Massie: No, because there is a history suggestive of rheumatic fever.

Dr. Woon: But on previous examination the patient's heart was normal. The endocardial lesion must have developed recently, a fact which is against Henoch's purpura as a diagnosis. Let us take these three most likely diagnoses and attempt to correlate them, one by one, with the signs and symptoms. Dr. Taussig, can the symptoms recorded—weakness, nausea, pain in the left upper quadrant, in the pleura, in the epigastrium

and in the joints, projectile vomiting, diplopia, and aphasia-be explained on the basis of lupus?

Dr. Taussig: I think they can.

Dr. Wood: Dr. Massie, on the basis of subacute bacterial endocarditis?

Dr. Massie: Yes. Dr. Wood: Dr. Moore, on the basis of periarteritis nodosa?

Dr. Moore: Yes.
Dr. Wood: The history, therefore, does not help us much in the differential diagnosis. Dr. Taussig, of the physical signs-fever, tachycardia, a tender nodule in the leg, erythema of the face, erythema multiforme, petechiae, retinal hemorrhage, stiff neck, rales, enlarged heart, presystolic and systolic murmurs, splenomegaly and arthritis-how many can you explain on the basis of lupus? Certainly fever and tachycardia. How about the nodule in the leg?

DR. TAUSSIG: It could be an embolus. Or erythema

nodosum is a rare manifestation.

DR. Wood: What about erythema multiforme?

Dr. Taussig: Various types of rash are observed. DR. WOOD: Edema of the face, petechiae and retinal hemorrhage are compatible. What about the stiff neck?

DR. TAUSSIG: Widespread involvement of the central nervous system occurs, whether meningeal or not I am not sure.

I believe it has been described. Basal Dr. Wood: rales and enlarged heart are in keeping. What about the murmurs?

Dr. Taussig: The presystolic murmur is not common. A systolic murmur is very common. Splenomegaly and arthritis are both common.

Dr. Wood: Your diagnosis is doing well. Can yours

do as well, Dr. Massie?

Dr. Massie: Yes, except for erythema multiforme. DR. WOOD: Yes. What about periarteritis nodosa,

Dr. Moore?

Dr. Moore: It can explain all the signs except the presystolic murmur.

Dr. Wood: How about the skin lesions?

Dr. Moore: I think erythema multiforme may occur in periarteritis nodosa but I am not sure.

DR. WOOD: Dr. Weiss, is that true? DR. RICHARD WEISS: It is very uncommon.

Dr. Wood: Is meningitis a feature?

DR. Moore: It has been described.
DR. Wood: How about the cardiac signs?
DR. Moore: An enlarged heart and a systolic murmur are in keeping, but not a presystolic murmur.

Dr. Wood: Splenomegaly? Dr. Moore: Yes.

DR. WOOD: Now let us consider the laboratory findings. They are: anemia, leukopenia, low specific gravity the urine, albuminuria, cylindruria, hematuria, white blood cells in the urine, a false positive Kahn test, azotemia, increase of globulin, positive formol gel test, and increased lung markings. Dr. Taussig, can you fit them in with your diagnosis?

Dr. Taussig: Anemia, leukopenia and the urinary findings are in keeping. I do not know about the Kahn

test.

DR. CYRIL MACBRYDE: A variable Kahn reaction, sometimes positive and sometimes negative, has been reported and is a significant finding.

Dr. Wood: The other laboratory findings are all compatible with lupus. Your diagnosis gets 100 per cent, Dr. Taussig.

Dr. Llewellyn Sale: How much consideration would you give to the age of the patient in considering a diagnosis of lupus?

Dr. Wood: We will take up that point a little later, Dr. Sale. Dr. Massie, does subacute bacterial endocarditis fit in with these laboratory findings?

Dr. Massie: It fits in with everything except possibly the false positive Kahn test. I am not sure about that.

Dr. John Smith: I have never seen a false positive Kahn in subacute bacterial endocarditis.

Dr. Wood: I would also question leukopenia as being compatible with this diagnosis.

STUDENT: The literature seems to disagree on the question of hematuria. A constant degree of hematuria is present in lupus, whereas in subacute baterial endocarditis the amount varies

DR. Wood: Then that finding fits in with either. Azotemia fits in. What about increased globulin?

Dr. Massie: It occurs sometimes. Dr. Wood: The positive formol gel test and the lung markings are in keeping. Dr. Moore, how does your diagnosis fit in with the laboratory findings?

Dr. Moore: It is compatible all the way through,

except that leukopenia might be questionable.

Dr. Wood: I think leukopenia is against periarteritis

DR. MACBRYDE: The lack of eosinophilia should be mentioned as against that diagnosis.

Dr. Moore: Eosinophilia is present in a little more than half the cases.

Dr. Wood: What about the false positive Kahn?

Dr. Moore: I do not recall ever having seen it. Dr. Wood: Harris reported eight cases in which there was a positive blood Kahn. The rest of the find-

ings are in keeping with periarteritis nodosa. We are up against a very difficult problem. All the signs, symptoms and laboratory findings fit in with lupus erythematosus, not quite so many of them with subacute baterial endocarditis, and all but the skin manifestations and the presystolic murmur with periarteritis nodosa. Dr. Weiss, do you believe we can make a differential diagnosis between periarteritis nodosa and disseminated lupus on the basis of these findings?

DR. WEISS: Not exactly on the basis of the findings. but if we balance all the findings against one another I think we are entitled to say that in all likelihood the disease was disseminated lupus.

DR. WOOD: Dr. Sale has brought up the very important question of the age of the patient. She was 48. Dr. Sale, will you discuss that point?

DR. SALE: I had in mind the frequency with which lupus occurs in young females—during the second and third decade. However it is not unknown at this age. The patient's age would not rule it out.

Dr. Wood: There have been cases in patients at least as old as 50. Is the patient's age against periarteritis

nodosa?

Dr. Sale: No. I think a biopsy might have been useful in coming to a conclusion, if periarteritis nodosa was considered.

DR. Wood: It would have, but this patient was admitted in 1941 and at that time we were not doing as many biopsies for periarteritis nodosa. Dr. Moore, which of these diagnoses do you favor?

Dr. Moore: Disseminated lupus. Dr. Wood: On what grounds?

Dr. Moore: Because everything fits. In order to make the diagnosis of periarteritis nodosa, you would have to accept some rather unusual findings. There is usually a hypertension with periarteritis. While I think it is impossible to eliminate periarteritis nodosa, it is less likely than disseminated lupus.

Dr. Wood: Can we correlate these various symptoms and signs with the pathologic anatomy of disseminated lupus erythematosus? We would not have much difficulty with the weakness and malaise and nausea. What pathologic change of lupus would result in pain in the left upper quadrant?

Dr. TAUSSIG: An embolus in the spleen or kidney. Dr. Wood: Yes, splenic infarct. How about pleural pain?

Dr. Taussig: Pleurisy is one of the manifestations of

Dr. Wood: Yes, at times it involves all the serous cavities. It is important to emphasize that this disease involves blood vessels, serous cavities, serous membranes, and often has a profound effect on the bone marrow. Would you explain the epigastric pain on the basis of peritonitis?

Dr. Taussig: Yes.

DR. Wood: The joint pain would result from arthritis, which is common. How can we explain the neurologic signs, Dr. Harford?

Dr. Harford: Probably by embolism in the central nervous system, producing possibly a subarachnoid

nemorinage.

DR. Wood: Might they have resulted from menin-

gitis, since the patient had a stiff neck?

Dr. Harrord: You mean a bacterial meningitis?
Dr. Wood: I believe the meningitis occurring in these cases is nonbacterial. It is an involvement of

these cases is nonbacterial. It is an involvement of the serous surfaces. We could explain the vomiting and the stiff neck on that basis. How about diplopia and aphasia?

DR. HARFORD: If there is enough meningitis, there

might be involvement of the sixth nerve.

DR. Wood: Or these signs might result from an embolism. Dr. Massie, do these patients have embolic phenomena?

Dr. Masie: Yes, they certainly do.

DR. Wood: Yes. Thrombi break off from the heart valve and cause the phenomena of subacute bacterial endocarditis. How would you explain the skin lesions

on the basis of lupus?

DR. Weiss: They are primarily erythema, secondarily dilatation of the blood vessels with degeneration of the coats. I saw this patient in June, 1935, when she was said to have had an eruption on the face. The day she came to my office, however, the eruption had disappeared. In August of 1938 I saw her, and she than had erythema multiforme on the limbs. The disease, therefore, had been present for a number of years before she appeared at the hospital.

Dr. Wood: The illness started at the age of 45, Dr. Sale. The platelets may be low in some of these patients. We have mentioned the meningitis. What hap-

pens in the lung. Dr. Taussig?

DR. TAUSSIG: There is a type of pneumonitis caused

by vascular involvement.

DR. Wood: We can therefore correlate all of these signs and symptoms with the pathologic changes of disseminated lupus. I think we can also explain most of the laboratory findings on this basis. The consensus seems to be that a diagnosis of subacute bacterial endocarditis is the least likely. Dr. Massie, do you agree?

docarditis is the least likely. Dr. Massie, do you agree?
Dr. Massie: According to Libman's description of the patients he followed, who had negative cultures for a period of months, this patient's illness. except for the skin lesions. is quite compatible with subacute bac-

erial endocarditis.

Dr. Wood: Admitting that it is a definite possibility, let us however, eliminate it temporarily for purposes of discussion. Dr. Moore, do lupus erythematosus and periarteritis nodosa have anything in common?

Dr. Moore: They are both diseases of blood vessels. Dr. Wood: Yes, they have a great many features in common. It is perhaps worthwhile to mention a famous case that was discussed at a clinicopathologic conference in 1938 at Massachusetts General Hospital. The patient had all the clinical signs of lupus erythematosus. Dr. Soma Weiss made that diagnosis. Dr. Mallory, after going over all the sections, made a pathologic diagnosis of periarteritis nodosa. Dr. Weiss declared that while ordinarily the pathologist has the final word as to the diagnosis, in that particular case he felt that the clinician had to be heard. He pointed out that periarteritis nodosa occurs in cases of lupus erythematosus, and that on clinical grounds the latter diagnosis should also be made. Dr. Mallory agreed that he could not rule out lupus erythematosus.

In this case, just to be on the safe side, we might also bring in both diagnoses. The patient may show the pathologic signs of lupus, but Dr. Smith may also find a few lesions characteristic of periarteritis nodosa.

CLINICAL DIAGNOSIS

Disseminated lupus erythematosus, Libman-Sachs type.

DR. WOOD'S DIAGNOSIS

Disseminated lupus erythematosus. Periarteritis nodosa.

ANATOMIC DIAGNOSIS

Chronic endocarditis of the mitral valve, moderate; of the aortic and tricuspid valves, slight.

Subacute bacterial endocarditis (bacterial free type)

of the mitral, aortic and tricuspid valves.

Hemorrhage and encephalomalacia of the septum pellucidum, the corpus callosum and of the right temporal lobe of the brain.

Hemorrhage into all ventricles of the brain.

Subarachnoidal hemorrhage, moderate.

Mycotic aneurysm of a small artery of the meninges. Subacute diffuse glomerulonephritis.

Partially healed infarcts of the spleen and kidneys.

PATHOLOGIC DISCUSSION

Dr. Margaret Smith: We have made a final diagnosis of subacute bacterial endocarditis rather than disseminated lupus with atypical vertucous endocarditis. The reasons for this interpretation are: the vegetative lesions on the mitral, aortic and tricuspil valves do not have the character, either grossly or microscopically, of the characteristic type seen in Libman-Sachs disease; there are no lesions of the smaller blood vessels which are a sine qua non of the anatomic diagnosis of disseminated lupus; the characteristic wire-loop change of disseminated lupus in the kidney is not present; and the vegetations and the mycotic aneurysm in the brain are typical of subacute bacterial endocarditis.

The immediate cause of death was intracranial hemorrhage. We cannot reconstruct the history completely but I do not believe that this patient had had sub-acute bacterial endocarditis since 1935. The vegetations show only minimal organization and no calci-

fication.

BOOK REVIEW

CLINICAL LABORATORY METHODS AND DIAGNOSIS. A Textbook on Laboratory Procedures With Their Interpretation. By R. B. H. Gradwohl, M.D., D.Sc. Director of the Gradwohl Laboratories and Gradwohl School of Laboratory Technique; Formerly Director of Laboratories, St. Louis County Hospital; Pathologist to Christian Hospital; Director, Research Laboratory, St. Louis Metropolitan Police Department, St. Louis, Mo.; Commander, Medical Corps, United States Naval Reserve, Ret. Third Edition. With 726 Text Illustrations in Both Volumes and 57 Color Plates. Volumes 1 and 11. St. Louis: C. V. Mosby Company. 1943. Price \$20.00.

This is an encylopedic work in two volumes covering the field of laboratory methods. The descriptions of apparatus and procedures are so complete as to furnish the technician with an easy approach to the performing of tests; and the practitioner with authentic discussion of their application and value. The language is remarkably clear. This is the best quality of the work.

Any work of this type must depend for its reputation and usefulness on the attitude taken by the author in the matter of interpretation. Here the work excels. The

author is painstaking and fair.

The volumes cover the field of hematology, bacteriology, chemistry and the studies of the secretions of the body as well as the exudates of disease. They deal with the preparation of and diagnosis of tissue sections, and with the technic of autopsy. There is an excellent chapter on the laboratory procedures of tropical medicine.

Even the research worker will find easy access to the description of many procedures in his field. R. A. K.

THE JOURNAL

of the

Missouri State Medical Association

623 Missouri Bldg. Telephone: Newstead 0404-05

Subscription - - - \$3.00 a year in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent.

NOVEMBER, 1944

EDITORIALS

COMMITTEE TO STUDY HEALTH NEEDS

A special advisory committee to the State Board of Health to survey the needs for additional health facilities throughout the state has been appointed by Dr. James Stewart, State Health Commissioner. Missourians invited to serve on the committee with Dr. Stewart are: Dr. Frank R. Bradley, president of the Missouri Hospital Association and superintendent of Barnes Hospital, St. Louis; Colonel John J. Griffin, chairman, St. Louis and St. Louis County branch of the National Foundation for Infantile Paralysis; Dr. Herbert L. Mantz, Kansas City Tuberculosis Controller; Dr. Joseph C. Peden, St. Louis, chairman of the St. Louis Mayor's Advisory Council for Hospitals; Thomas R. O'Brien, St. Louis, Executive Secretary of the Community Health League of Missouri; Dr. M. Pinson Neal, Columbia, chairman, Committee on Postwar Planning of the Missouri State Medical Association; C. E. Lively, Columbia, member of the Department of Rural Sociology, University of Missouri; Frank Hodgson, Hannibal, chairman of the State Cancer Commission; Chester G. Starr, Jefferson City, Missouri Farm Bureau Federation; Reverend O. V. Jackson, Rolla, chairman of the South Central Missouri Son, Rolla, Charling of General Hospital; Joy O. Tally, Jefferson City, Director, State Vocational Rehabilitation; Walter Schilling, regional director of the CIO, and John J. Church, executive secretary of the Central Trades and Labor Union, AFL, St. Louis. Dr. Bradley will serve as chairman of the committee.

A special advisory council to the committee includes Ray F. McCarthy, executive director, Group Hospital Service, St. Louis; F. F. Dodds, president, Group Hospital Service, Kansas City; M. R. Kneifl, secretary, Catholic Hospital Association, St. Louis, and George Spearl, president, State Architects Association, St. Louis.

Missouri takes the lead in the appointment of this special committee which will work with the newly organized national committee on hospital care in making a national health study in collaboration with the American Hospital Association, the U. S. Public Health Service, the Commonwealth Fund, the Kellogg Foundation and the National Foundation for Infantile Paralysis.

Following the advice of the national body, the committee will inventory existing hospital and health department institutions. block out reasonable service districts around the institutions strong enough in diagnostic facilities and medical staff to serve as teaching and clinical centers, coordinate existing institutions so as to obtain maximum utilization of their facilities, and plan construction so that existing institutions, together with the facilities to be constructed, will con-

stitute a coordinated hospital and health center system in the state.

Emphasis will be placed on the needs of rural areas and the findings of the committee will assist the various agencies in the state in facilitating the construction of both public and voluntary nonprofit hospitals and health centers so as to equalize the distribution of health facilities throughout the state.

POINTS OUT WHAT TO EXPECT UNDER BUREAUCRATIC MEDICINE

The Governing Council of the American Public Health Association on October 4 adopted a report favoring in effect a federal plan of compulsory health insurance, without consultation with medical and dental leaders of the nation, despite a proposal to do so. This indicates, The Journal of the American Medical Association for October 14 declares, the attitude that may be expected of those committed to federal control of all matters in the health field if they should have control of the Washington bureaucracy that would dominate American medicine should their ideas become effective. The Journal says:

"At its annual meeting in New York, October 4, the Governing Council of the American Public Health Association adopted a report favoring in effect a federal plan of compulsory health insurance. . . This report, first prepared by a subcommittee, was approved after several amendments by the association's Committee on Administrative Practive. The proposed medical service would be supported by social insurance, supplemented by general taxation or by general taxation alone.

by general taxation, or by general taxation alone.

"The ratification of the report as amended came after extended debate in which there was opposition to the adoption and publication of the report as a stated policy of the association. Those who opposed pointed out (a) that the administration of public health in the United States was by no means so universal or so generally adequate that public health departments in general were ready for this step, (b) that before the association placed itself publicly on record in the terms of this report there should be consultation with the most interested professional groups, particularly the American Medical Association and the American Dental Association, and (c) that the publication of the subcommittee report, its approval by the Committee on Administrative Practice and the call for adoption in the Governing Council occurred within less than thirty days elapsed time, although the subcommittee had been working on the report for a year.

'The motion to adopt the report was made at the October 2 meeting of the Governing Council and was extensively debated at that time. Action was postponed until the October 4 meeting. At that time an amendment was offered to the motion to adopt. This amendment called for the Governing Council to receive this portion of the report of the Committee on Administrative Practice and to refer it to the Executive Board of the American Public Health Association with instructions to confer with the Board of Trustees of the American Medical Association and with the American Dental Association in an attempt to arrive at a statement which these three great professional groups could support. The amendment was lost by a standing vote approximately three to one after a voice vote had left the chair in doubt. The Governing Council then proceeded to vote on a motion to adopt the report; this vote was 49 Aye and 14 No. The opposition to the adoption of the report was led by Drs. Walter A. Bierring, Past President of the American Medical Association, Haven Emerson and W. W. Bauer.

"Now what is the group that adopted this report? Of the 7.493 members of the American Public Health Association 1,571 are Fellows. Only Fellows have a right to vote for governing councilors; the vote is conducted by ballot given to each Fellow when he registers at the meeting; Fellows not in attendance do not have a vote. The Governing Council consists of approximately 100 members, of whom 30 are elected

by vote of the Fellows, 10 each year for three year terms; the rest of the members of the Governing Council hold membership by virtue of being section officers or representatives of affiliated (mostly state) public health associations. Members of the association other than Fellows can vote only on section affairs. The report on compulsory health insurance represents, therefore, the action of the subcommittee which prepared it, the Committee on Administrative Practice which approved it and the 49 members of the Governing Council who voted in its favor. Here is not a democratic practice in action; here is a shrewdly manipulated performance by full time public officials, economists, bureaucrats. Most of the names of those on the subcommittee are those of men long committed to federal compulsory sickness insurance and to federal control of all matters in the health field.

"The American Public Health Association has an

"The American Public Health Association has an obvious right to express itself on any subject related to the public health. The rejection by the majority group of the proposal for consultation with medical and dental leaders indicates the attitude that may be expected of them if they should have control of the Washington bureaucracy that would dominate American medicine should their ideas become effective. Perhaps this step in which these men had leadership will be useful in serving notice once more on the medical, dental, nursing, pharmaceutical and other professional groups as to the nature of the political manipulators in the fields of social security and public health whom the medical professions will be forced to combat."

NEWS NOTES

Dr. H. S. Miller, Sikeston, spoke on public health at an open meeting in New Madrid on August 25.

Dr. Frank R. Bradley, St. Louis, has been elected President of the American Council of Hospital Administrators.

A National Venereal Disease Control Conference under the auspices of the U. S. Public Health Service will be held November 9 to 11 at the St. Louis Medical Society Building, St. Louis.

The name, The Women's Field Army of the American Cancer Society, has been changed to "The Field Army" in recognition of the fact that men as well as women are vitally concerned in the work.

Dr. Sam H. Snider, Kansas City, was a guest of the Lafayette and Johnson County Medical Societies on September 26 and spoke on "The Development of Tuberculosis from Infection to End Result."

Capt. Alphonse McMahon, St. Louis, now serving with the Navy, received the Mississippi Valley Medical Society 1944 Distinguished Service Award at the annual meeting of the society in Peoria on September 28.

The work of Dr. M. G. Seelig, St. Louis, and others at the Barnard Free Skin and Cancer Hospital, St. Louis, in the substitution of potassium bitartrate for talcum in surgery was editorialized in the September 23 issue of The Journal of the American Medical Association.

Col. Howard A. Rusk, St. Louis, Chief, Convalescent Training Division, Office of the Air Surgeon, Washington, D. C., was a guest of the Indiana State Medical Association at its annual meeting on October 3, 4 and 5, and spoke on "New Horizons in Management of Convalescents."

Drs. Robert Mueller and Frank R. Bradley, St. Louis; Wallis Smith, Springfield, and George Newman, Cassville, appeared on the program of an Allied Health Conference held in Springfield, September 1, under the auspices of the Missouri Hospital Association, Group Hospital Service and the Missouri State Medical Association.

Dr. George D. Kettelkamp, Koch, was elected president of the newly formed Missouri Chapter of the American Trudeau Society. Other officers elected are: President-elect, Dr. E. E. Glenn, Springfield; secretary-treasurer, Dr. Mathew Noon, Kansas City; members of executive committee, Drs. H. I. Spector, St. Louis, and W. Gregory Gunn, Versailles.

Missouri physicians who will appear on the program of the Southern Chapter of the American College of Chest Physicians meeting jointly with the Southern Medical Association in St. Louis, November 13 to 16, are Drs. Evarts Graham and H. I. Spector, St. Louis, and Lt. Col. Brian B. Blades, Washington, D. C. Dr. Herbert L. Mantz, Kansas City, will preside at the Tuesday morning session.

Dr. E. E. Glenn, Springfield, was elected president of the Missouri Tuberculosis Association at the annual meeting in Kansas City, October 4. Other physicians who were elected as officers are: vice presidents, Dr. Herbert L. Mantz, Kansas City, and Major Newell R. Ziegler, Columbia; members of the executive committee, Drs. Jesse E. Douglass, Webb City; Dr. F. M. Smith, Independence; Dr. James Stewart, Jefferson City.

Major F. I. Wilson, Kansas City, was awarded the Bronze Star for meritorious achievement in connection with military operations against the enemy at Ararae, New Guinea. In recommending Major Wilson for the citation, the commanding officer stated in part: "There were occasions when wounded were admitted in large numbers late in the day. On such occasions, Major Wilson plunged into the work of examining, sorting and assigning cases to various surgeons and himself performing a large number of major operations. He would continue with tireless energy throughout the evening and well into the morning hours without seeking rest. The following morning he would be on the job promptly, seeking no relief. On one occasion during a heavy rainstorm continuing throughout the night, with blackout in force and at the same time with a large amount of small arms, machine gun and mortar flying all around the hospital so close that many bullets were flying through the area, he continued his operating, working calmly and efficiently with utter disregard to his own safety. By his actions he inspired and stimulated the morale of the personnel to a very great degree, receiving the loyal and enthusiastic collaboration of all the officers of the surgical service and the entire hospital."

DEATHS

Humphrey, Joseph Harrison, M.D., St. Louis, a graduate of Washington University School of Medicine, 1901; Fellow of the American Medical Association; member of the St. Louis Medical Society; aged 68; died June 23.

Youngman. Jacob Andrew, M.D., Sappington, a graduate of the St. Louis College of Physicians and Surgeons, 1905; Fellow of the American Medical Association; member of the St. Louis Medical Society; aged 67; died August 10.

Sullivan, Francis Hall, M.D., Miami, a graduate of Marion Sims College of Medicine, 1898; member of the Saline County Medical Society; aged 72; died August 16. 230

Jennings, Dwight L., M.D., St. Louis, a graduate of St. Louis University School of Medicine, 1929; member of the St. Louis Medical Society; aged 42; died August 23.

Damron, Oscar H., M.D., Silex, a graduate of Keokuk Medical College, 1896; Fellow of the American Medical Association; member and former president of the Lincoln County Medical Society; aged 74; died August 30.

McGuire, Morris Spencer, M.D., Boonville, a graduate of Missouri Medical College, 1895; member of the Cooper County Medical Society; aged 70; died Au-

Schery, Charles William, M.D., St. Louis, a graduate of the St. Louis College of Physicians and Surgeons, 1904; Fellow of the American Medical Association; honor member of the St. Louis Medical Society; retired; aged 68; died September 9.

Appleberry, Reuben, M.D., Farmington, a graduate of Barnes Medical College, 1903; Fellow of the American Medical Association; member and former president of the St. Francois-Iron-Madison-Washington-Reynolds County Medical Society; aged 64; died September 10.

Milne, Lindsay Stephen, M.D., Kansas City; a graduate of the University of Edinburgh Faculty of Medicine, 1904; Fellow of the American Medical Association; member of the Jackson County Medical Society; aged 61; died September 17.

Hibbard, Sherman Blaine, M.D., Kansas City, a graduate of Rush Medical College, 1912; member of the Jackson County Medical Society; aged 56; died Sep-

Wilhelm, Francis E., M.D., Kansas City, a graduate of the University of Kansas School of Medicine, 1906; Affiliate Fellow of the American Medical Association; honor member and former president of the Jackson County Medical Society; retired; aged 71; died September 26.

COUNCILOR DISTRICT AND SOCIETY **PROCEEDINGS**

ASSOCIATE EDITORS: COUNCILORS OF THE TEN COUNCILOR DISTRICTS

FIRST COUNCILOR DISTRICT

H. E. PETERSEN, ST. JOSEPH, COUNCILOR

Mercer County Medical Society

The Mercer Councy Medical Society met September 12 with the following members present: Drs. T. S. Duff, Cainsville; C. J. Sellers, Mt. Moriah; J. M. Perry, C. J. Laws, A. S. Bristow, E. W. Stacy, Princeton.

Dr. R. B. Bristow, Princeton, was elected a member of the Society.

A resolution endorsing the Blue Cross was adopted. The president appointed Dr. J. M. Perry, Princeton, to investigate and obtain information concerning a hospital in Mercer County.

Dr. C. P. Pickett, Princeton, was elected vice president.

J. M. Perry, M.D., Secretary.

TENTH COUNCILOR DISTRICT

PAUL BALDWIN, KENNETT, COUNCILOR

St. Francois-Iron-Madison-Washington-Reynolds County Medical Society

The St. Francois-Iron-Madison-Washington-Reynolds County Medical Society met at the State Hospital, Farmington, September 28. The following members were present: Drs. Harry Barron and M. B. Barber, Fredericktown; Emmett F. Hoctor, S. A. Lanzafame, Frank Nichols and G. L. Watkins, Farmington; J. P.

Yeargain, Irondale; J. L. Thurman, Potosi; Ferdinand Welebir, Bonne Terre; J. W. Hunt, Jr., Leadwood, and Dailey Appleberry, Rivermines.

Dr. Harry Barron, Fredericktown, president, called the meeting to order. After the regular business meet-ing a round table discussion on "The Practice of Medi-cine" ensued.

J. W. Hunt, Jr., M.D., Secretary.

Scott County Medical Society

The Scott County Medical Society met at the City Hall, Sikeston, October 11, with Dr. G. W. H. Presnell, Sikeston, president, presiding.

The prepayment medical care plan was discussed. A letter from Capt. A. D. Martin M.C., now stationed in Bermuda was read. He gave an interesting description of work in evacuation of casualties and also described the country and its climate and population. He expressed the hope that the war would soon be over and he would be back in Scott County.
Dr. H. A. Dunaway, Sikeston, led a discussion on

"Treatment of Head Infections with Penicillin."

W. O. FINNEY, M.D., Secretary.

BOOK REVIEWS

APPLIED DIETETICS. The Planning and Teaching of Normal and Therapeutic Diets. By Frances Stern, Chief of Frances Stern Food Clinic, The Boston Dispensary; Assistant in Medicine, Tufts College Medical School; Special Instructor in Dietetics in Social Service, Simmons College, The School of Social Work; Associate in Nutrition, Simmons College School of Home Economics. Second Edition. Baltimore: Williams and Wilkins Company. 1943. Price \$4.00.

This is a book written by a dietitian who has had many years of experience in the Food Clinic of the Boston Dispensary. It is prepared particularly for dietitians and social workers who are engaged in dispensary work. There is a mass of tables covering the food values of all the nutrients. The diets recommended for the various diseases are excellent, the only criticism being that perhaps not enough attention is paid to the cost.

A physician interested in the technic of dietetics will find this book of great interest, but it is particularly recommended to the dietitians.

MINOR SURGERY. By Frederick Christopher, S.B., M.D., F.A.C.S. Associate Professor of Surgery at Northwestern University Medical School, Chicago; Chief Surgeon of the Evanston (Ill.) Hospital. Fifth Edition, Reset; with 575 Illustrations. Philadelphia: W. B. Saunders Company. 1944. Price \$10.00.

The fifth edition of this popular text, just published, has been compared with the third edition, published in 1935. The amount of revision is truly amazing. The bibliography includes many papers published late in 1943.

The reviewer has found many interesting, up to the minute discussions of controversial points over which he has lately been puzzled; for example, how the Rh factor in blood is demonstrated; the value, if any, of dietary and vitamin supplements in fracture healing; and the management of intracranial injuries, especially as regards lumbar puncture. The chapters on bone injuries and fractures are especially good. Bunnell's technic of tenorrhaphy using wire sutures is described.

The amount of real information in these pages makes this an ideal reference book. There are tables of information on the choice sulfonamide to use, and the length of time before physiotherapy should be started in various types of fractures. The book is an excellent and worth while addition to any doctor's library and every surgical intern should have ready access to a B. S. P.

Patient of thin type of build -

ANATOMICAL SUPPORT for faulty BODY MECHANICS

In conditions of faulty body mechanics, the nonuse of the abdominal muscles allows the pelvis to rotate downward and forward, bringing the sacrum up and back. There results an increased forward lumbar curve with the articular facets of the lumbar spine crowded together in the back. The dorsal spine curves backward with compression of the dorsal intervertebral discs and the cervical spine curves forward with the articular facets in this region closer together. Therefore, chronic strain of the muscles, ligaments and joints of the spine and pelvis occurs.

Camp Anatomical Supports have an adjustment by means of which their lower sections can be evenly and accurately brought about the major portion of the bony pelvis. When the pelvis is thus steadied, the patient can contract the abdominal muscles with ease and then with slight movement straighten the upper back.

Relieving back strain and fatigue, due to faulty body mechanics is a feature of the Camp Support illustrated, and other types for Prenatal, Postnatal, Postoperative, Pendulous Abdomen, Visceroptosis, Nephroptosis, Hernia and Orthopedic conditions.



ANATOMICAL SUPPORTS

S. H. CAMP & COMPANY Jackson, Michigan

W'orld's Largest Manufacturers of Scientific Supports
Offices in CHICAGO • NEW YORK
WINDSOR, ONTARIO • LONDON, ENGLAND

INDEX TO ADVERTISERS

Abbott Laboratories		21
Aloe, A. S. Company		32
American Meat Institute		6
Barlow-Maney Laboratories		10
Bernheim Distilling Company		43
Borden Company		11
Brewing Industry Foundation		17
Burroughs Wellcome & Company	.26,	
Camel Cigarettes		9
Camp, S. H. & Company		23
Canada Dry Ginger Ale, Inc.		12
Cheplin Laboratories, Inc.		38
Ciba Pharmaceutical Products, Inc.		35
Ciba Pharmaceutical Products, Inc		45
Coca-Cola Company		36
Denver Chemical Manufacturing Company		44
		28
Faith Hospital		7
Glanwood Sanatorium		28
Glenwood Sanatorium		34
Grandview Sanitarium		22
Hamilton-Schmidt Surgical Company		28
Hanger, J. E., Inc.		36
Hanley, Edmund F.		42
Holland-Rantos Company		8
Hynson, Westcott & Dunning, Inc.		46
Isle, W. E., Company		22
Lederle Laboratories, Inc.		25
Lilly, Eli and Company		16
Lov-E Brassiere Company		19
Luzier's, Inc.		37
M & R Dietetic Laboratories, Inc.		41
Major Clinic Association		5
Mead Johnson & Company		48
Medical Protective Company		18
Milwaukee Sanitarium		1
Miscellaneous Announcements		42
Mosby, C. V., Company		30
Mullen Ambulance Company		
National Pathological Laboratory		18
Nestle's Milk Products		39
Neurological Hospital, The		28
Norbury Sanatorium		32
North Shore Health Resort		45
Parke, Davis & Company		4
Petrogalar Laboratories, Inc.		47
Philip Morris & Company		27
Physicians Casualty Association		34
Producers Creamery Company		46
Ralph Sanitarium		34
Schenley Laboratories, Inc		40
Schering Corporation		31
Schieffelin & Company		18
Schmid, Julius, Inc.		
Searle, G. D. & Company		13
Smith-Dorsey Company		12
Smith, Kline & French Laboratories		29
Spencer, Inc.		42 42
Stokes Sanitarium		3
Upjohn Company		36
Wallace Sanitarium		15
Worrell, Dorothy		42
Wyeth, Inc.		2
Young, F. E., & Company		24
Zemmer Company		22

BOOKS RECEIVED

VENTURES IN SCIENCE OF A COUNTRY SURGEON. Arthur E. Hertzler, M.D., Halstead, Kansas. 1944.

International Bulletin, The. For Medical Research and Public Hygiene. Editor-in-Chief W. L. Colze. Vol. A44. Rosenow: Poliomyelitis. From the Mayo Foundation For Medical Education and Research. University of Minnesota, Rochester. New York.

New and Nonofficial Remedies, 1944. Containing Descriptions of the Articles Which Stand Accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1944. Issued Under the Direction and Supervision of the Council on Pharmacy and Chemistry of the American Medical Association. Chicago: American Medical Association. 1944.

METASTASES. Medical and Surgical. By Malford W. Thewlis, M.D. Attending Specialist in General Medicine, United States Public Health Hospitals, New York City; Attending Physician, South County Hospital, Wakefield, Rhode Island; Special Consultant. Rhode Island Department Public Health Author Care of the Aged (Geriatrics), Preclinical Medicine. Foreword by Hubert A. Royster, A.B., M.D., F.A.C.S. Honorary Chief Surgical Service, Rex Hospital; Chief-of-Staff, St. Agnes Hospital; Consulting Surgeon, Dix Hill State Hospital; Fellow American Board of Surgery, Raleigh. With 13 Illustrations. Charlotte, N.C.: Charlotte Medical Press. 1944. Price \$5.00.

Fertility in Men. A Clinical Study of the Causes, Diagnosis, and Treatment of Impaired Fertility in Men. By Robert Sherman Hotchkiss, B.S., M.D., Lt. Comdr., (M.C.) U.S.N.R. (on active service); Assistant Professor of Urology, New York University Medical College; Instructor in Surgery (Urology), Cornell Medical College; Assistant Visiting Attending, Department of Urology, Bellevue Hospital; Assistant Visiting Attending in Surgery (Urology), New York Hospital; Chief of Urological Clinic, New York University Medical College Clinic. With a Foreword By Nicholson J. Eastman, M.D., Chairman, Editorial Committee, National Committee on Maternal Health; Professor of Obstetrics in Johns Hopkins University; Obstetrician-in-Chief to the Johns Hopkins Hospital. 95 Illustrations. Philadelphia: J. B. Lippincott Company. 1944.

Manual of Military Neuropsychiatry. Edited by Harry C. Solomon, M.D., Professor of Psychiatry, Harvard Medical School; Medical Director at the Boston Psychopathic Hospital; Paul L. Yakovlev, M.D., Clinical Director, Walter E. Fernald State School; Instructor in Neurology at the Harvard Medical School. With the Collaboration of: Wilfred Bloomberg, Lt. Col., M.C., A.U.S.; Francis J. Braceland, Comdr. (M.C.) U.S.N.R.; Stanley Cobb, M.D.; Malcolm J. Farrell, Lt. Col., M.C., A.U.S.; Roy D. Halloran, Col., M.C., A.U.S. (Deceased); William F. Kennedy, Capt. (M.C.) U.S.N.R.; William Malamud, M.D.; H. Houston Merritt, M.D.; John H. Murray, Lt. Col., M.C., A.U.S.; William C. Porter, Col., M.C., A.U.S.; Francis H. Sleeper, M.D. Philadelphia: W. B. Saunders Co., 1944.

YOUNG'S
RECTAL
DILATORS

In the Treatment of CONSTIDATION

 Constipation, and poor sphincter muscle control resulting from the use of cathartics, often yield to treatment by mechanically stretching the sphincter muscles. Sold on prescription only; not advertised to the laity. Obtainable from your surgical supply house or ethical drug stores. In 4 graduated-size Sets, \$3.75. Write for Brochure.

F. E. YOUNG & CO.

428 E. 75th St.

Chicago 19, Illinois



THE JOURNAL

OF THE

Missouri State Medical Association

The Official Organ of the State Association and Affiliated County Societies
Issued Monthly under direction of the Publication Committee

COPYRIGHTED, 1944, BY MISSOURI STATE MEDICAL ASSOCIATION. ALL RIGHTS RESERVED.

VOLUME 41

DECEMBER, 1944

Number 12

RALPH L. THOMPSON, M.D., Editor HELEN PENN, Assistant Editor 623 Missouri Bldg., St. Louis, Mo. Telephone, Newstead 0404-05 PUBLICATION | RALPH L. THOMPSON, M.D., Chairman | W. A. BLOOM, M.D. | ROBERT MUELLER, M.D. | J. WILLIAM THOMPSON, M.D.

EXPERIMENTAL DIABETES

DONALD R. BLACK, M.D.

KANSAS CITY, MO.

There is perhaps no disease in which experimentation has played a more important role than diabetes, and it is fitting that any discussion considering diagnosis and treatment should be initiated by a review of at least some of the experimental problems which have lent a hand in modern management.

Naturally, the present discussion should be limited to recently accepted ideas. I would suggest that the discussion follow lines that will help in every day treatment, considering, first, the relation of various endocrine glands to diabetes; second, arteriosclerosis and capillary friability and, third, diagnosis of the disease, a discussion of the significance of glycosuria.

THE ASSOCIATION OF ENDOCRINE GLANDS WITH DIABETES

Some of the facts learned from a survey of experiments designed to show the influence of pituitary and adrenal glands on the production of diabetes really shake the very foundation of belief in a total pancreatic conception of the disease.

This pancreatic conception of diabetes has been built on two main factors: (a) the experimental findings of Mering and Minkowski that when the pancreas is completely removed from a dog, a characteristic syndrome (diabetes) rapidly develops; (b) the work of Mann and Magrath in which it was demonstrated that when more than 85 per cent of the liver is removed from dogs, profound hypoglycemia results.

There are three main factors that cause a diminution of sugar production: abnormality of liver cells, inhibitory action of insulin on glyconeogenesis in the liver and the decreased hepatic glyconeogenesis resulting from diminished output of the anterior pituitary, thyroid or cortical and medullary adrenal secretions.

In 1908 Bouchardt found that an extract of posterior pituitary raised the blood sugar.

Presented at the 87th Annual Session of the Missouri State Medical Association, Kansas City, April 23, 24, 25, 1944.

In 1911 Cushing noted that pituitary deficiency was accompanied by increased carbohydrate tolerance and later Olmsted, Geiling and Houssay showed that animals are more sensitive to insulin after the pituitary was removed. Later Houssay produced hyperglycemia by injection of anterior pituitary extract and all are familiar with Young's work on the production of permanent diabetes produced by the injection of large amounts of anterior pituitary extract.

An interesting sidelight in this connection is the paper of Gitlon, et al., on estrogen diabetes and the menopause. Since the menopause is associated with hyperactivity of the anterior lobe of the pituitary, it follows that increased production of the diabetogenic factor can aggravate an existing diabetes either by its antagonistic action to insulin or, more fundamentally, by its effect functionally or even anatomically in producing hydropic and hyaline degeneration or even atrophy of the islands of Langerhans. These patients require greater amounts of insulin and usually respond well to estrogenic substance.

Lukens, Dohan and Wolcott recently made an interesting observation on the relation of pituitary diabetes to the pathogenesis of diabetes. They noted that whereas anterior pituitary extract produces hyalinization of the islands, this increase was diminished or abolished if phlorrhizin was administered coincidentally with the pituitary extract. Phlorrhizin has no effect on the histology of the islands in pre-existing diabetes. They noted that the only clear similarity between diabetes and phlorrhizin diabetes is the similar effect on the blood sugar.

Thyroxin is incapable of producing permanent diabetes. Practically, the effect of Grave's disease on diabetes is due to the fact that thyroxin increases cellular activity causing an augmentation of carbohydrate oxidation and it presumably also causes an increased rate of hepatic glyconeogenesis.

Blum first noted that glycosuria could be produced by the injection of adrenalin, the immediate rise in the blood sugar being explained by the breakdown of liver glycogen to glucose. Adrenalin

also mobilizes muscle glycogen, but in this case the immediate product is lactic acid, not glucose. Diabetes is not produced by the continued use of adrenalin.

Insulin and adrenalin are not chemical antagonists but possess opposing physiologic actions. Adrenalin accelerates the breakdown of both liver and muscle glycogen but the lactic acid made from muscle glycogen may result in actual increase in the liver glycogen.

Insulin promotes the formation of glycogen in both organs, but the increase in muscle glycogen may be at the expense of sugar which would have formed liver glycogen.

Britton and Silvette found that double adrenalectomy in cats and rats produced hypoglycemia by depleting the carbohydrate stores in the liver and muscles. They showed that the hypoglycemia could be controlled by the administration of cortical extract and glucose, but not by glucose alone. Later, Long demonstrated remarkable increases in liver glycogen in fasted or fed animals, when cortical extracts were administered.

There have been two cases reported recently of diabetes and Addison's disease occurring coincidentally in the same patient, one by Nelson and the other by Thorn and Arnton.

In Thorn's case, the onset of diabetes in a patient with Addison's disease doing well on cortate therapy, was characterized by progressive anorexia, weakness, fall in blood pressure and increased cortate requirement. A marked improvement followed institution of insulin therapy.

After consideration of the various extra pancreatic influences on the pathogenesis and course of diabetes, the fact still remains that the only therapeutic approach to control of the disease at present is one of diet and proper insulin dosage.

ARTERIOSCLEROSIS

There is a general axiom that when intimal arteriosclerosis is found in the skeletal muscles at autopsy, diabetes must be considered. There has been and there is considerable controversy as to the reason for increased arteriosclerosis in diabetic persons as compared to nondiabetic persons of the same age. The popular idea is that in diabetes there is a larger amount of circulatory lipoid material in the blood stream and that the intimal walls absorb cholesterol more easily than in the nondiabetic cases. Hirsh and Weinhouse insist that infiltration of cholesterol into the intimal cells occurs in diabetic and nondiabetic patients with or without hypercholesteremia. The reason for the infiltration is not known.

Considerable attention has been given recently to diabetic retinitis. Allen and Jacoby both have made good contributions to the subject. Unfortunately, up to the present time, our knowledge of the subject seems to stop with its recognition. Retinal hemorrhages are not always due solely to arteriosclerosis or to hypertension. There is some

indication that such individual factors as increased permeability of retinal vessels or general increase in capillary fragility may also be involved in the process. This has lead to the possibility of a deficiency state, namely, vitamin C or even B. Treatment with both these vitamins has been rather discouraging. In general, the consensus of opinion has been that high carbohydrate, low fat diets supported by adequate insulin dosage, supplies the best therapeutic approach.

In my own experience with diabetic retinitis, I have been convinced that several factors unrelated to diabetes might play a role. Most important has been focal infections: in sinuses, teeth and tonsils. I have felt that with consideration of these factors early in the disease, diabetic retinitis is rather rare. In other words, if one anticipates the development of retinitis and other vascular lesions when the patient first presents himself and attempts to control faulty fat metabolism with high carbohydrate, low fat diets, with sufficient insulin to maintain an even keel, and at the same time endeavors to maintain a sound hygenic regime, little is to be feared from this complication.

I will leave sclerosis of the extremities to another essayist.

DIAGNOSIS OF THE DISEASE

Glycosuria may and frequently does occur in the absence of diabetes. By elaborating Cushings filtration reabsorption theory of kidney function, Mirsky and Nelson have offered a very workable explanation of the significance of glycosuria.

Crystaloids are filtered through the glomeruli so that the capsular urine contains the same concentration of these substances as does the blood. In the tubules these crystaloids are either reabsorbed or concentrated and excreted.

It is clear that the excretion of glucose in the urine depends on three factors: the concentration of sugar in the blood stream, the rate at which the glomeruli filter it out and the rate of tubular reabsorption.

The maintenance of normal blood sugar is a remarkable economic phenomenon. Hyperglycemia may occur, for example, when carbohydrate is absorbed from the gastrointestinal tract at a rapid rate, as in hyperthyroidism, or when there is a decrease in the rate of carbohydrate storage as in toxic hepatitis and, lastly, permanent hyperglycemia may result when there is a permanent breakdown of glycogen in the liver caused by insufficient insulin, as in diabetes.

Now, in order to understand the mechanism that makes possible on the one hand glycosuria with normal blood sugar and on the other hand hyperglycemia without glycosuria, three factors must be considered: glomerular filtration rate, dextrose clearance rate and tubular reabsorption rate.

As noted previously, the capsular urine contains the same amount of dextrose as the blood and the filtration rate will be dependent upon the integrity of the glomeruli. The glucose clearance rate represents the amount of glucose that has been filtered through the glomeruli less that which has been reabsorbed by the tubules.

In order to determine the rate, it was necessary to find a substance that was not reabsorbed by the tubules, but which was secreted in the urine in toto. Inulin is such a substance and by its use it has been shown that 125 cc. of urine is cleared of insulin per minute. This can be used as an accurate basis for determining the glucose clearance rate.

By this means it was established that the amount of glucose that has been removed from the plasma per minute is the product of the glucose clearance and the concentration of glucose in the blood plasma. Thus with a blood sugar of 80 mg. per 100 cc. and clearance rate of 125, then 80 times 125 equals 100, tubular reabsorption.

The amount of glucose in the urine depends on the balance between the amount that enters the tubules and the amount that is reabsorbed into the blood stream from the tubules. The rate is rather constant and is determined by measuring the amount of glucose that enters the tubules less the amount that appears in the urine. The rate is about 250 cc. per minute. Thus, in the normal individual with a blood sugar of 80 mg. per 100 cc. and a glucose clearance of 125 cc. per minute, again 80 times 125 equals 100, which, of course, is less than 250 and no sugar would appear in the urine.

In renal glycosuria, on the other hand, there is some defect in tubular reabsorption. Thus with blood sugar of 80 mg. per 100 cc. and glucose clearance of 125, but with a tubular reabsorption rate of only 75 mg. per minute, one would have 80 times 125 equalling 100, but with the tubular reabsorption of only 75, then 100 minus 75 equals 25 mg. of sugar which would appear in the urine per minute.

One could also explain why in diabetes complicated with nephrosclerosis, sugar does not necessarily appear in the urine even in the presence of hyperglycemia. Thus, given a patient with nephrosclerosis, with blood sugar of 220 mg. per 100 cc., but with a glucose tolerance of only 50 cc. per minute, then 220 times 50 equals 100, and assume that the tubular reabsorption is only 200 mg. per minute, then there would be no sugar in the urine.

Heretofore, the renal threshold has been described as the blood sugar level at which sugar appears in the urine. This point would vary, of course, with the rise or fall of the blood sugar. In light of this explanation, the renal threshold may be defined as that concentration of blood sugar at which the quantity entering the tubules per minute exceeds that which the tubules can reabsorb in the same interval.

It is therefore apparent that the concentration of sugar in the urine is not in itself an accurate index of the severity of diabetes.

924 Professional Building.

UNDERLYING PRINCIPLES IN THE DIETARY MANAGEMENT OF DIABETES

B. Y. GLASSBERG, M.D.

ST. LOUIS

Despite much fundamental research the underlying principles in the dietary management of diabetes have not changed in the last quarter of a century. Treatment is motivated by the fact that diabetes is a slowly progressive disease which, when untreated, insidiously attacks body tissue. Tissue destruction follows upon impaired cellular nutrition, the result of the hastening of the arteriosclerotic process characteristic of living organisms. Every therapeutic effort, therefore, must be directed to the prevention of the arteriosclerotic phenomena.

Frederick Allen¹ early demonstrated the importance of undernutrition. Joslin² has again and again emphasized this fundamental concept. The introduction of insulin did not affect this principle although it led to a liberalization of diet. Unfortunately the fact that insulin is available has been followed by much regrettable carelessness in diabetic management. There are those who teach that as long as insulin is given regardless of the completeness of its effect upon carbohydrate metabolism,³ the patient is receiving sufficient therapy. No control is exerted upon the diabetic process in the patient given insulin if hyperglycemia is allowed to persist. Unless the whole physiologic abnormality is managed adequately insulin alone is of no value. Those irresponsible practitioners who urge the opposite concept can not be too strongly condemned.

The recent animal investigations of Best, Campbell, Haist and Ham⁴ afford convincing evidence that islet cell function may be preserved. They injected the anterior pituitary lobe diabetogenic hormone into laboratory animals. They found that a diet high in fat counteracted the effects of the hormone just as did concurrent injections of insulin. Islet cell exhaustion occurred in those animals whose diet was almost exclusively carbohydrate. The long term results of careless diabetic management are strikingly evidenced in Boyd's⁵ statistics. He found that children with continuous hyperglycemia showed a much greater incidence of tissue deterioration than children in whom the diabetic process was controlled according to the criteria listed below.

Clinical application of these fundamental principles resolves itself into the attainment of the following objectives.

- 1. Body weight normal or slightly below normal.
- 2. A diet adequate in all of the essential nutrients and sufficient in calories to meet the energy requirements.

From the Department of Medicine, Washington University School of Medicine.

Presented at the 87th Annual Session of the Missouri State Medical Association, Kansas City, April 23, 24, 25, 1944.

- 3. A urine continuously free of sugar.
- 4. Twenty-four hour blood sugar levels which approach those of the normal individual.

CLINICAL MANAGEMENT

Weight reduction is necessary in the initial management of approximately three fourths of the patients who first present themselves for treatment. In the absence of diabetic complications this may be accomplished by any one of a number of low calorie diets. Benzedrine or dexedrine are often helpful in overcoming the craving for food. In the frankly hypothyroid individual, thyroid substance may prove advantageous.

The caloric requirement may be estimated easily for the person engaged in a relatively sedentary occupation by multiplying the ideal weight in pounds by ten and adding thereto from one third to one half of the total. The calories to be supplied may be divided variously between protein, fat and carbohydrate. It is generally accepted that approximately one half gram of protein should be given for each pound of body weight. The protein intake should of course include meat, milk, fowl, fish, eggs and cheese.

Some practitioners have asserted that dietary fat aggravates diabetes. If the patient is not overweight there is neither presumptive nor objective proof of such an assertion. Nevertheless such unfounded concepts have led to the formulation of diets containing from 250 to 400 grams of carbohydrates-more than the average urban dweller consumes. A diet prescription which calls for this excessive amount of starch predisposes to dietary laxness on the part of the patient who sees no fundamental difference between his diet and that diet followed by the nondiabetic members of his family. To fill it he must ingest large quantities of concentrated carbohydrate food such as pie, cake, ice cream, even candy! The ingestion of such large quantities of concentrated carbohydrate demands large amounts of insulin. Without it the islet cells charged with the utilization of sugar are strained, a fact amply demonstrated in the experiments of Best and his collaborators. Unless the blood sugar level is controlled irreparable, pancreatic damage is likely to ensue.

The concensus among the more moderate minded diabetic clinicians is that the diet should contain 150 grams of carbohydrate or a little more. This fairly liberal allowance permits the ingestion of at least one slice of bread or its equivalent in the form of potatoes, rice, spaghetti or lima beans at each meal. It allows a sufficient amount of fruits and vegetables that the requirements for the water soluble vitamins are easily met. Furthermore, because it does limit the starch intake, it focuses the attention of the patient upon the fact that he must choose his food with discrimination.

The balance of the caloric need is supplied by fat in the form of butter, cream, bacon and mayonnaise as well as in the fat intimately combined with

the protein foods. This caloric distribution insures an adequate supply of the water insoluble vitamins.

If the patient's urine does not become sugar free upon the prescribed diet, insulin is administered in an amount sufficient for the purpose. The final check upon the amount of insulin which is necessary is afforded by blood sugar determinations before breakfast, two hours after each meal and at midnight. Rearrangement of the insulin schedule and dosage are predicated upon these findings.

CONCLUSION

An intelligent appreciation of the importance of adhering to fundamental concepts governing human metabolism will go far toward improving the health level of the diabetic patient. Persistent effort should be directed toward bringing his metabolic processes as close to those of the normal individual as possible. Then it may be expected that he will be freed from the later disabling complications of his disease. Infinite care in the management of diabetic patients will be rewarded by an increased span of diabetic lives and by the increased social and economic usefulness of each diabetic person.

3720 Washington Avenue.

BIBLIOGRAPHY

1. Allen, Frederick M.; Studies Concerning Glycosuria and Diabetes, Cambridge, Harvard University Press, 1913.
2. Joslin, Elliott P., et al.: The Treatment of Diabetes Mellitus, 7th ed., Philadelphia, Lea and Febiger, 1940.
3. Tolstoi, E.; Almy, T. P., and Toscani, V.: Treatment with Protamine Insulin: Is Glycosuria Harmful? Ann. Int. Med. 16:893, 1942; Mirsky, I. A.: Etiology of Diabetic Acidosis, J.A.M.A. 118:690, 1942.
4. Haist, R. E.; Campbell, J., and Best, C. H.: Prevention of Diabetes, New England J. Med. 223:607, 1940.
5. Boyd, J. D.; Jackson, R. L., and Allen, J. H.: Avoidance of Degenerative Lesions in Diabetes Mellitus, J.A.M.A. 118:694, 1942.

USE OF SLOW-ACTING INSULIN

FRED IRWIG, M.D.

KANSAS CITY, MO.

A new era in the treatment of diabetes mellitus was ushered in by the discovery and isolation of insulin by Banting and Best in 1921. More than a half a century of research passed before the hormone regulating the carbohydrate metabolism was isolated.

The history of insulin dates back to 1869 when Langerhans¹ discovered some "islands" in the pancreas tissue. In 1893 Laguesse² first suspected that the Langerhans cells had an internal secretory function. He also noticed that the islands were more numerous in the fetus of the newborn calf. In 1889 von Mering and Minkowski³ found that diabetes mellitus was produced in dogs after extirpation of the pancreas and so established the cause for diabetes mellitus.

In 1900 Schulze⁴ and Ssobolew⁵ ligated the pancreatic duct, causing atrophy of only the acinous tis-

Presented at the 87th Annual Session of the Missouri State Medical Association, Kansas City, April 23, 24, 25, 1944. Chief of the Diabetic Clinic, Alfred Benjamin Dispensary.

sue of the pancreas. No glycosuria resulted and thus the antidiabetic function of the islands of Langerhans was demonstrated. In November, 1920, Banting and Best⁶ first succeeded in extracting insulin from atrophic pancreatic glands, after ligation of the pancreatic duct. In November, 1921,7 these workers produced an active pancreas extract from calf embryo. Later with the help of Collip⁸ the active principle was isolated by alcohol extraction. A water soluble, practically protein free extract, from beef pancreas, was produced and first used in human diabetes in January, 1922. However, the name of insulin already had been given to the secretion of the islands of Langerhans in 1909 by J. de Mever.9

The action of the amorphous or crystalline insulin (with or without zinc) is quite well understood. It is a fast-acting insulin but of rather short duration. The dramatic action starts in from about twenty to thirty minutes after injection, reaches its peak after about three to four hours and lasts about six to eight hours. One unit of insulin is usually able to metabolize 1½ to 2½ grams of exogenous carbohydrate in the diabetic. In cases in which high carbohydrate diets are employed, one unit of insulin may enable the body to utilize as much as

from 5 to 8 grams of dextrose.

Regular insulin always should be used in emergencies and complications such as diabetic coma, acute infections, surgery, deliveries, when insulin requirements fluctuate and in the young child. In all cases in which one injection of insulin will normalize the diabetic, unmodified insulin may be employed. However, when large doses of insulin must be used and multiple injections, from two to four times a day or even night, are necessary, a slow-acting insulin or a combination of unmodified and slow-acting insulin is preferable.

A number of slow-acting insulin compounds have been developed abroad and in this country containing additions of lipoid suspensions and emulsions, colloids, proteins or other substances.10 The slow-acting insulins used in this country are insulin and protein combinations. Protamine insulin with zinc has been used for a number of years while Globin insulin has been introduced commercially only recently. Another slow-acting insulin, histone insulin, deserves mentioning and further reports may establish its permanent value.

Protamine insulin was discovered by H. C. Hagedorn, assisted by B. Norman Jensen, N. B. Krarup and I. Wodstrup.¹¹ The discovery was published by these Danish scientists in the beginning of 1936.12 Protamine insulin was developed at the Steno Memorial Hospital at Copenhagen. Carefully controlled comparative studies have since been made in Europe and America. Extensive research work was done also at Toronto, Canada, where insulin was originally developed by Banting and Best.

Hagedorn reasoned that prolonged hyperglycemic action would result if an insulin preparation could be found having a very low solubility at the pH of the body fluids. He developed a quite unsoluble compound at pH 7.2 by the addition of a buffered solution containing protamine to an insulin solution. While the unmodified insulin is taken up immediately by the body fluids, the precipitate of protamine insulin was absorbed very slowly.

The blood sugar lowering effect of protamine insulin was found to persist from two to four times as long as that of unmodified insulin. Investigation by D. A. Scott and A. M. Fisher^{13, 14} lead to the addition of zinc to protamine zinc insulin by the Toronto workers. They found that the addition of zinc to the mixture caused still greater prolongation of action even beyond twenty four hours. The protamines are basic proteins of simple composition which are obtained from the milt of fishes belonging to the Salamine group (fam. Salamonidae). Protamine zinc insulin is a suspension of finely divided, insoluble, milky white precipitate in a clear fluid. After shaking, it should be administered subcutaneously, never intravenously. Each hundred units of protamine zinc insulin (U 40 or U 80) contain approximately 1.25 mg. of protamine, 0.2 mg. of zinc, 0.25 per cent of phenol and 1.6 per cent glycerin, to achieve isotonicity. Disodium acid phosphate is used to maintain a hydrogen ion concentration of between pH 7.4 and 7.1.

Allergic Sensitivity.—Allergic sensitivity seems to be rare and most diabetic patients become desensitized after continued use of protamine zinc insulin.

Potency and Dosage.-Varying in different individuals protamine zinc insulin permits the utilization of about 20 per cent more dextrose per unit than does unmodified insulin, making it possible to reduce the number of units of protamine zinc insulin generally about one fourth.

In most cases in which protamine zinc insulin was substituted for unmodified insulin, the total number of injections needed daily has been one or two less than when unmodified insulin was used and, in many instances, the number of injections could be reduced to one per day. In changing the patient from unmodified insulin to protamine zinc insulin, the initial dose of protamine zinc insulin should be about two thirds and not more than four fifths of the total daily dose of unmodified insulin previously given.

Duration.—The duration of action of protamine zinc insulin is more than twenty four hours and may extend into the third day. Regular daily doses may therefore have cumulative effect.

Mode of Action.—R. D. Lawrence showed in 1939¹⁵ that unmodified insulin is able to take care of much exogenous carbohydrate, whereas protamine zinc insulin, due to the slow rate of absorption, utilizes exogenous carbohydrate very poorly, but releases the active insulin at a fairly uniform and constant rate. The slow action reduces both the occurrence of hypoglycemic reactions in very sensitive cases and the fluctuation in blood sugar level during twenty four hours. Due to its prolonged action, protamine zinc insulin produces a low fasting blood sugar while diabetic patients treated with unmodified insulin, which is quickly absorbed during the night, show a high fasting blood sugar level. Occasionally an inconsistency in response to the same daily dose of protamine zinc insulin may be encountered, probably due to the variable vascular supply at the site of injection, ¹⁶

Hypoglycemia.—Although the frequency of occurrence of hypoglycemia has been reduced in diabetic patients treated with protamine zinc insulin, the character of the reactions may be more severe and of longer duration. In most instances reactions occur at night since the maximum blood sugar lowering effect is reached in from sixteen to twenty hours after administration, which is during the night period of fasting.

Treatment of Hypoglycemia.—Hypoglycemic reactions in diabetic patients using protamine zinc insulin may not only be prolonged but also recurrent. Therefore, a soluble together with a slowly digestible carbohydrate should be given.

Diet.—A diabetic person using protamine zinc insulin may be adjusted more easily if the breakfast contains less carbohydrate than lunch and supper.

Indications.—The use of slow-acting insulin made the treatment of diabetic patients simpler, safer and the maintenance of an even blood sugar surer.

The slow-acting insulin was not intended to supplant the unmodified insulin. The former has its own indications and often is to be used, especially in severe cases, along with the unmodified insulin.

Slow-acting insulin alone (except in very young children) may be used in all mild and moderate diabetics of the following types: (1) Cases who have previously used one injection of unmodified insulin. (2) Cases with a high fasting blood sugar. (3) Cases previously requiring more than a single dose of unmodified insulin, but not much more than 30 units of unmodified insulin. (4) Sensitive cases, with a narrow margin between glycosuria and hyperglycemic reaction.

In more severe cases, in which the combined use of unmodified and slow-acting insulin is indicated, both types of insulin are often employed separately.¹⁷ They may be given at the same time but at different sites. By this method the quick-acting, unmodified insulin will bridge the six to eight hour period of low activity of protamine zinc insulin, while the reduced dosage of protamine zinc insulin will help avoid nocturnal hypoglycemia. A small evening feeding may be added to counteract possible nocturnal hypoglycemic reactions.

A combination of unmodified and slow-acting insulin is preferable: ¹⁸ (1) In cases in which the total insulin dosage is more than 30 to 40 units daily. (2) When multiple doses must be used. (3) In unresponsive cases, (a) Addison's disease, (b) liver damage with impaired glycogen storage, (c) young children.

Favorable reports also recommend the use of slow-acting insulin in: (1) Cardiac patients in whom hypoglycemia should be avoided. (2) Diabetic persons with liver enlargement (hepatomegaly). (3) Patients with a tendency to develop fatty atrophy at site of injection (lipodystrophy). (4) Patients with hyperlipemia. (5) Patients subject to industrial hazards.

Administration.—Protamine zinc insulin should be administered subcutaneously never intravenously. Injection of protamine zinc insulin before breakfast followed or accompanied by a separate small dose of unmodified insulin is the method most favored in this country, while the Danish workers prefer to substitute the evening dose with slow-acting insulin. While this latter method helps to avoid nocturnal hypoglycemia, its primary object was not reduction of insulin injections to one daily dose.

Adjustment of Doses.—F. B. Peck¹⁸ suggests that in beginning treatment of uncomplicated cases with protamine zinc insulin the technic recommended by Joslin¹⁹ may be followed: (1) Cases not previously treated with insulin: first day use 10 units of protamine zinc insulin, increase daily by 5 to 10 units of protamine zinc insulin. (2) Cases previously taking insulin: replace total daily dose with ³/₄ as much protamine zinc insulin. (3) If glycosuria and hyperglycemia persist after meals, readjust food intake and add supplementary dose of insulin. If Benedict test shows green add 5; orange 10; red 15 units of insulin.

When the total insulin dosage exceeds 30 units daily, or when multiple injections must be given to obtain satisfactory twenty-four hour control, an unmodified insulin and protamine zinc insulin mixture is preferable.

In 1941 H. Ulrich²⁰ first recognized the difficulties inherent in mixing unmodified and protamine zinc insulin. The unmodified insulin readily combines with the excess of free protamine in protamine zinc insulin. The quantities of unmodified insulin and protamine zinc insulin to be used in the mixtures are guided by the characteristics of the single doses of these insulins. It is of no value, however, to use smaller doses of unmodified insulin than of protamine zinc insulin, for such mixtures act like protamine zinc insulin alone. When more than an equal amount of unmodified insulin was added, some prompt action was obtained together with prolonged action, comparable to results obtained by two separate injections of one small dose of unmodified and one large dose of protamine zinc insulin. In fact, the action of repeated daily doses was consistent and predictable, even more reliable than that of separate injections simultaneously of the two insulins. Ulrich has shown that the modified insulin action found in these mixtures is probably not due to unmodified insulin in them. The active insulin in this form is probably absorbed in the protamine zinc insulin precipitate, or possibly in the form of more soluble protamine insulinate, than that existing in the presence of more protamine and in the more alkaline suspension.

Reports of treatments with mixtures by A. R. Colwell and coworkers²¹ suggest better control of severe diabetics than with separate injections of both unmodified and protamine zinc insulin. Due to greater efficiency the dosage may be reduced and multiple injections may often be avoided.

Ulrich²⁰ found the 3: (2)* Mixture and F. B. Peck¹⁸ the 2: (1) mixture of insulin and protamine zinc insulin to be the generally most suitable combinations.

F. B. Peck²² writes: "Many of the mild cases requiring under 30 units per day have been well controlled with a 3:2 mixture (3 parts insulin, 2 parts protamine zinc insulin). Average cases using about 30 to 40 units usually do quite well from the start with a 2:1 mixture. After the daily dosage reaches 50 units or thereabouts, we have often found it necessary to add more insulin in order to obtain satisfactory control with the single dose. Our highest doses have been between 140 to 150 units and some of these cases have required a ratio of 3 to 4 parts of insulin to one of protamine zinc insulin."

If multiple injections were employed, Peck¹⁸ suggests: (a) Replace total amount with 1: (1) insulin: protamine zinc insulin mixture. (b) If daytime glycosuria persists, increase ratio to 3: (2) or 2: (1), or rarely 3: (1) insulin: protamine zinc insulin mixture. (c) If fasting glycosuria and hyperglycemia persists, reduce amount of insulin in mixture.

The approximate contents of quick-acting insulin in an insulin protamine zinc insulin mixture has been worked out by Peck. The rather interesting values of rapidly acting insulin in mixtures may be seen in the following table: ²³

TABLE I

Protamine	sulin: Zinc Insulin xtures	Approximate Content of Rapidly-Acting Insulin			
	Parts				
Insulin	Protamine Zinc Insulin	%			
1 1 3 2 3 4	3 == 2 == 1 == 1 == 1 == 1 == 1 == 1 ==	10 15 25 40 50 65 70			

Another table, giving the approximate unitage in mixtures of insulin and protamine zinc insulin was also published by Peck. This table should be helpful in evaluating and adjusting the insulin requirements in "tailormade" extemporaneous mixtures.²⁴

The insulin prescription should specify the total dose and the amount of unmodified insulin and protamine insulin separately.

Technic or Preparing an Extemporaneous "Tailormade" Mixture in Insulin Syringe. 18—1. Inject proper amount of air corresponding to the prota-

AFFR	, A		MIIAG	LIN	DM 6.7			٠. ١	i N a (LIN	AND					
		1:	Φ_			3:	0			2	: ①	_		3:	Φ_	_ '
DESTAL	-	<u>@</u>	-	=	1	<u>@</u>	-	=		<u>@</u>	_	=	_	<u>@</u>	-	=
10	5	5 .	2.5	7.5	6	4:	- 4	6	7	3=	- 5	5	7.5	2.5 -	6.5	3.5
15	7.5	7.5	- 4	11_	9	6 -	- 6	9	10	5 -	= 7.5	7.5	11	4 -	- 10	5
20	10	10 -	- 5	15	12	8 :	- 8	12	13	7 =	= 10	10	15	5 =	13	7
25	12.5	12.5	- 6	19	15	10-	10	15	17	8 :	12.5	12.5	19	6 =	- 16	3
30	15	15 =	7.5	22.5	18	12=	12	18	20	10=	15	15	22.5	7.5	19.5	10.5
35	17.5	17.5	9	26	21	14 =	14	21	23	12 =	17.5	17.5	26	9 =	= 23	12
40	20	20 =	10	30	24	16=	16	24	27	13=	20	20	30	10 =	26	14
45	22 5	22.5	- 11	34	27	18=	18	27	30	15=	22.5	22.5	34	11 =	29	16
50	25	25 =	12.5	37.5	30	20 =	20	30	33	17 =	25	25	37.5	12.5 =	32.5	17.5
60	30	30 =	15	45	36	24 =	24	36	40	20 =	= 30	30	45	15 a	39	21
70	35	35 =	17.5	52.5	42	28 =	28	42	47	23=	35	35	52.5	17.5=	45.5	24.5
80	49	40 =	20	60	48	32 =	32	48	53	27 =	40	40	60	20 =	52	28
90	45	45 =	22.5	67.5	54	36=	· 36	54	60	30	45	45	67.5	22.5=	58.5	31.5
100	50	\$0 ·	25	75	60	40 =	= 40	60	67	33=	50	50	75	25 =	65	35
110	55	55 ±	27.5	82.5	66	44=	44	66	73	37=	- 55	55	82.5	27.5=	71.5	38.5
120	60	60 =	= 30	90	72	48 =	48	72	80	40-	60	60	90	30 =	78	42
130	65	65 -	32.5	97.5	78	52=	5 2	78	87	43 =	65	65	87.5	32.5 -	84.5	45.5

APPROXIMATE UNITAGE IN MIXTURES OF INSULIN AND PROTAMINE ZING INSULIN

140 70 70 +35 105 84 56+56 84 93 47+70 70 105 35+91 49 150 75 75 +38 112 90 60+60 90 100 50+75 75 112.5 37.5 +97.5 52.5

mine zinc insulin requirements into the top of protamine zinc insulin bottle and withdraw needle. 2. Inject proper volume of air into unmodified insulin bottle and withdraw desired amount of unmodified insulin. 3. Insert needle in protamine zinc insulin bottle and withdraw required dose of protamine zinc insulin. 4. Draw air bubble into syringe and mix. 5. After expulsion of air bubble, inject mixture subcutaneously.

Preparation of Mixtures in Larger Amounts.—If a mixture has been found which gives constantly the same desired results, larger amounts of the mixture may be prepared for daily use. These mixtures keep well, are quite stable, making daily extemporaneous mixtures unnecessary.

To fill the gap existing between the rapid, but short-acting, unmodified insulin and the late-acting protamine zinc insulin, "Globin zinc insulin" seems to show great promise.²⁵ Globin insulin with zinc only recently has been made available commercially and was developed at the Wellcome Research Laboratory of Burroughs Wellcome & Company in the U.S.A.

"Globin" insulin is insulin modified by the action of globin, a simple protein derived from the hemoglobin of beef erythrocytes. The clear aqueous solution contains in 80 units of insulin, 3.04 mg. of globin, 0.24 mg. of zinc chloride, 0.18 per cent cresol, with a pH of about 3.7. The product is stable and the acid properties contribute to the maintenance of sterility and stability.²⁶

Allergic Sensitivity.—"Globin" insulin has not been found to be allergenic.^{27, 28}

Potency and Dosage.—The number of injections needed is comparable to protamine zinc insulin. One daily dose in most cases is sufficient. Severe cases may require a morning and evening dose. Several investigators report that the total dosage of globin insulin needed is frequently less than that of protamine zinc insulin.^{29, 30, 31, 32} Mixtures with unmodified insulin cannot be used.

Duration.—The duration of action of globin insulin is somewhat less than that of protamine zinc

^{* ()} denotes protamine zinc insulin.

insulin. It extends to about twenty to twenty two hours and almost vanishes in twenty four hours. Regular daily doses show no cumulative effects.

Mode of Action.—Globin insulin produces an intermediate type of action lying between that of unmodified and protamine zinc insulin. The action is rather prompt and prolonged and comes very close to the physiologic needs of most diabetic patients. Globin insulin is slower in action than unmodified insulin, but more rapid than protamine zinc insulin. It becomes effective in from one to two hours after injection and increases more rapidly than protamine zinc insulin. The intensity of action rises steadily up to about eight hours, then keeps at a fairly constant level for another eight hours. After sixteen hours the action of globin insulin begins to wane and become negligible in from twenty two to twenty four hours after injection.30

If globin insulin is injected one half, or better, one hour before breakfast, it should not be necessary to use an extra dose of unmodified insulin.30

Hypoglycemia and Treatment of Hypoglycemic Reactions.—Hypoglycemic reactions are rare during the night, since the action of globin insulin falls off sharply after sixteen hours. If reactions occur, they happen during the midafternoon while the patient is awake and is able to take care of himself better.27, 29 A soluble, together with a slowly digestible carbohydrate, should be used for treatment of hypoglycemia.

Diet.—Late small evening feedings as often used for protamine zinc insulin treated patients become unnecessary. However, experience has shown that a smaller breakfast (one fifth) and a larger lunch (two fifths) and supper (two fifths) are helpful in regulating diabetic patients treated with globin insulin.33

If the amount of globin insulin necessary to produce a normal fasting blood sugar (not over 150 mg.) should cause hyperglycemic reactions during the day, it has been recommended that the diet be adjusted further to take care of the larger carbohydrate demand during that time.33

Administration.-Globin insulin is injected one half, or better, one hour before breakfast.34 It is always given subcutaneously.

Indications.—Indications for the use of globin insulin are about the same as for protamine zinc insulin. A single injection daily will control most mild and moderate cases, and even some severe cases.²⁷ The severe and unstable case presents similar difficulties as encountered if treated with protamine zinc insulin. A dose of globin insulin large enough to take care of these cases at all times may be too strong at certain times of the day. Many of these patients can be controlled by two injections of globin insulin daily, about two thirds of the dose before breakfast and one third of the total dose before supper.29, 30 In difficult cases, Mosenthal35 has used successfully a morning dose of globin insulin and another dose of protamine zinc insulin before breakfast to provide prolonged nighttime effect.36

In summarizing, the following advantages of

globin insulin may be mentioned: Globin insulin is a clear solution. It seems to be nonallergenic. A single dose controls all light, most moderate and many severe cases of diabetes. Globin insulin possesses the good features of both unmodified insulin and protamine zinc insulin to a high degree, namely, the prompt action of unmodified insulin together with the prolonged action of protamine zinc insulin. Since globin insulin exerts its maximum effect during the midafternoon, hyperglycemic reactions are less frequent. If they occur, they fall during the time when the patient partakes of his heaviest meals and is most active.

It should finally be mentioned that some observers still feel that it is too early to evaluate fully the reported advantages of globin insulin over unmodified and protamine zinc insulin. Some feel that since its action cannot be varied to suit individual requirements, mixtures of insulin and protamine zinc insulin are more flexible. They also contend that its advantages are not great enough to justify complicating the treatment of diabetes by the introduction of a new insulin at this time.33 Further comparative clinical studies seem to be necessary to establish definitely the superior value of globin insulin.

Finally, "histone zinc insulin"34, 37 should be mentioned. The results published on this preparation are very similar to those obtained with globin insulin. Like globin insulin, its action is faster but somewhat less prolonged than protamine zinc insulin. Further studies may give it a permanent

place among the slow-acting insulins.

In closing it may be stated that no one insulin known today may be considered the ideal insulin for all diabetics.

1610 Professional Building.

BIBLIOGRAPHY

- 1. Langerhans: Beiträge zur mikroskopischen Anatomie der Bauchspeicheldrüse, Inaug. Dissert. Berlin, 1869.
 2. Laguesse: Compt. rend. Soc. de biol. 45:819, 1893.
 3. von Mering, J., und Minkowski, O.: Zentralbl. f. Klin. Med. 23: 1889.
 4. Schulze: Arch. f. mikr. Anat. u. Entwicklungs. 56: 1900.
 5. Ssobolew: Zentralbl. f. Path. 11:202, 1900.
 6. Banting and Best: J. Lab. & Clin. Med. 7:251, 1922.
 7. Banting and Best: Communication of the Academy of Medicine (Toronto) 2:7, 1922; J. Lab. & Clin. Med. 8:464, 1922.
 8. Banting, Best, Collip, Campbell, Fletcher: Canad. M. A. J. 12:141, 1922.
- 8. Banting, Best, Comp.
 12:141, 1922.
 9. DeMayer: Arch. di fisiol. 7:96, 1909.
 10. Jensen, H. F.: Insulin: Its Chemistry and Physiology,
 New York, Oxford University Press, 1938, p. 97.
 11. Hagedorn, H. C.; Jensen, B. Norman; Krarup, N. B., and
 Wodstrup, I.: Protamine Insulinate, J.A.M.A. 106:177, 1935.
 12. Hagedorn, H. C.; Jensen, B. Norman; Krarup, N. B., and
 Wodstrup, I.: Protamine Insulinate, Acta med. Scandinav. Wodstrup. I.: 78:678, 1936.
 13. Scott, D.
- Woostrup. 1.: Protamine Insulinate, Acta med. Scandinav. 78:678. 1936.

 13. Scott. D. A., and Fisher, A. M.: Proc. Am. Soc. Biol. Chem S. 88, 1936.

 14. Scott, D. A., and Fisher, A. M.: Studies on Insulin with Protamine, J. Pharm. & Exper. Therap. 78:58, 1936.

 15. Lawrence, R. D.: Zinc Protamine Insulin in Diabetes, Brit. M. J. 1:1077, 1939.

 16. Lawrence, R. D., and Archer, N.: Some Experiments with Protein Insulinate, Brit. M. J. 1:747, 1936.

 17. Peck, F. B.: Therapeutic Application of the Various Insulins, South. Md. & Surg. 103:539, 1941.

 18. Peck, F. B.: J. Indiana S. M. A. 36:340, 1943.

 19. Joslin, Elliot P.: Insulin Old and New in the Treatment of Diabetes, Canad. M. A. J. 35:526, 1936.

 20. Ulrich, Helmuth: Clinical Experiments with Mixtures of Standard and Protamine Zinc Insulin, Ann. Int. Med. 14:1166, 1941.

 21. Colwell, A. R.; Izzo, J. L., and Stryker, W. A.: Arch. Int Med. 69:931, 1942.

 22. Peck, F. B.: Personal Communication, 1944.

 23. Peck, F. B.: Proc. Am. Diabet. A. 2:69, 1942.

24. Peck, F. B.: Ann. Int. Med. 18:177, 1943, 25. Searle, D. S.: Personal Communication, 1944. 26. Reiner, L.: Searle, D. S., and Lang, F. H.: J. Pharm. & Exper. Therap. 67:330, 1939. 27. Bauman, L.: Proc. Soc. Exper. Biol. & Med. 40:170, 1939; Am. J. M. Sc. 198:475, 1939. 28. Duncan, G. G.: Diseases of Metabolism, Philadelphia, W. B. Saunders Co., 1942. 29. Levitt. A., and Schaus, J. P.: Med. Times 70:187, 1942.

Levitt, A., and Schaus, J. P.: Med. Times 70:187, 1942.
 Duncan, G. G., and Barnes, C. E.: Am. J. M. Sc. 202:553,

1941. 31. Bauman, L.: Bull. New England M. Center 5:17, 1943. 32. Andrews, J. B., and Groat, W. A.: New York State,

31. Bauman, L.: Bull. New England M. Center 5:17, 1943.
32. Andrews, J. B., and Groat, W. A.: New York State, J. Med. 40:913, 1940.
33. Marks, H. E.: M. Clin. North America 24:649, 1940.
34. Bailey, C. C., and Marble, A. J.: J.A.M.A. 118:683, 1942.
35. Mosenthal, H. O.: Personal Communication to Donald S. Searle (Burroughs Wellcome & Co.).
36. Bauman, L.: Personal Communication to Donald S. Searle (Burroughs Wellcome & Co.).
37. Barnes, C. A.; Tracy, D. C., and Duncan, G. G.; J. Pharm. and Exper. Therap. 72: 1941.

CASE REPORTS OF BARNES HOSPITAL

CLINICAL AND POSTMORTEM RECORDS USED IN WEEKLY CLINICOPATHOLOGIC CONFERENCES AT BARNES HOSPITAL, ST. LOUIS

W. BARRY WOOD, JR., M.D., and ROBERT A. MOORE, M.D., Editors

CASE 57

PRESENTATION OF CASE

The patient was a 53 year old, white, married woman who entered Barnes Hospital on August 18 and died August 20, 1944. The patient was too ill to recite her history and this was obtained from her daughter.

Chief Complaint.—Chills and fever.

Family History.—Irrelevant.

Past History.—The patient apparently had had no serious illness insofar as her daughter could recollect. Some years previously her family physician told her that she had high blood pressure but evidently no palpitation, shortness of breath or swelling of the ankles were complained of. She was born and had lived all of her life in a small town in Missouri. The family drank municipal water and pasteurized milk and the house had indoor plumbing. About one month previous to admission, the patient and her husband were on a picnic where country water and unpasteurized milk were taken. About that time, a dead mouse was found under their bed and a week later a bedbug was found in the bed. There is no history of tick bites. Five children from 11 to 31 years of age were well, but her husband became acutely ill on the day that she did and was sent to the hospital with her.

Present Illness.—Ten days previous to admission the patient suddenly complained of headache and aching muscles. She went to bed and the following day developed chills and fever. She was given atabrine by her physician. Three days later a red raised eruption appeared on the arms and shoulders and gradually spread to cover the entire body except the neck and face. Soon thereafter, mild diarrhea occurred and lasted two or three days. Five days previous to admission the patient's mind became considerably obtunded and this condition persisted, although she responded rationally to direct questions. Headache and chills gradually disappeared, but an apparent fever persisted. The patient took little nourishment or fluid after becoming ill. Three days before admission she was given sulfaguanidine, from 1 to 2 grams every four hours.

Physical Examination.—Temperature was 39.1 C., pulse 120, respiration 30, blood pressure 90/72. The patient was a well developed obese, middle aged white woman, apparently febrile and acutely ill. Her mind was partially obtunded, but she responded briefly to questioning. The respirations were deep and rapid. No odor of acetone was detected. Over the skin, with the exception of the neck and face, was a maculopapular eruption which in many places was petechial. No cyanosis or jaundice was present. The conjunctivae were slightly injected. The pupils reacted promptly. The fundi showed slight compression of the veins by the arteries. The ear drums were intact but thickened. The nasal mucosa was dry and red, as were the tongue and buccal mucosa. The throat was dry and somewhat red. The neck was not stiff. The trachea was in the midline. Percussion note over the lungs was somewhat dull at the right base posteriorly and over the right middle lobe anteriorly. Over these areas were diminished breath and voice sounds. There were many fine crackling rales at the right base posteriorly and a few anteriorly. The heart was not enlarged to percussion, the rhythm was regular, the rate rapid and the sounds very distant. There were no murmurs. There was slight voluntary resistance over the abdomen. No masses or tenderness were elicited. The spleen was questionably felt. The reflexes were somewhat hypoactive but bilaterally equal.

Laboratory Findings.—Blood count: red cells 5,-280,000, hemoglobin 15 grams; white cells 8,900, differential: myelocytes 1 per cent, juvenile forms 4 per cent, "stab" forms 47 per cent, segmented forms 45 per cent, lymphocytes 2 per cent, monocytes 1 per cent. Considerable toxic granulation was observed. Urinalysis: albumin 2 plus, many granular and occasional hyaline casts; no red or white blood cells; culture showed no growth. Stool examination was grossly negative and culture showed no pathogenic organisms. Blood Kahn reaction was positive. Blood culture showed no growth. Agglutination tests to typhoid, paratyphoid and proteus OX19 were negative. Sternal marrow, no toxoplasma. Roentgenogram of the chest (portable): Film was not entirely satisfactory as the patient did not cooperate. The heart shadow appeared within normal limits. The right leaf of the diaphragm was elevated markedly, extending as high as the second anterior interspace. Peribronchial markings appeared to be within normal limits. Urine sediment: no leptospira icterohemorrhagica.

Course in Hospital.—The patient received plasma and subcutaneous fluids. Penicillin 40,000 units every two hours was begun. Because of the low blood pressure, she received adrenal cortical extract. On the second hospital day the venous pressure was 235 mm. H₂O, the decholin circulation time 30 seconds. Digitalization was begun. The temperature fell briefly to 37.5 C. but rose again to about 40 C., where it remained. The respiratory rate gradually increased to 50 per minute. The blood pressure fell to 62/34. The patient became completely unconscious and died quietly.

Postmortem Reports.—Blood cultures and urine cultures were consistently negative. A guinea pig inoculated with the patient's blood seemed well ten days thereafter.

The patient's husband, aged 60 years, entered the hospital at the same time. He became ill on the same day as his wife. General malaise and headache were the initial symptoms. Two days later a shaking chill with fever developed. The following day diarrhea occurred which persisted until admission. Two days after onset a purplish rash appeared over the abdomen and spread over the entire skin, except the palms and soles. He received sulfaguanidine. Two days previous to admission his eyes and skin became yellow. At this time the temperature was found to be about 104 F. He became obtunded. During his illness he took essentially no food and very little fluid.

Physical Examination.—Temperature was 40 C., pulse 130, respiration 35, blood pressure 90/64. The patient appeared very acutely ill. He was rational but drowsy. The skin was dry, jaundiced, cyanotic and a petechial and purpuric rash was present over the extremities and trunk, more marked on the thighs and legs. The eyelids were swollen, the sclerae yellow and the conjunctivae injected and edematous. No photophobia was present. The pupils reacted poorly to light. The fundi could not be well examined. There was some injection of the ear drums. The nasal mucosa was dry and crusted. The mouth was likewise dry. The neck was not stiff. The trachea was in the midline. There was dullness over the right lower lobe of the lungs and absent breath sounds. No rales were heard. Respirations were rapid and deep. The heart could not be well outlined by percussion and the sounds were very feeble. No murmurs were heard. The abdomen was slightly distended. The liver was questionably enlarged and the spleen not felt. There was marked purpura over the skin of the scrotum. No deep reflexes were obtained. There was no lymphadenopathy.

Laboratory Findings.—Blood count: red cells 8,200,000; hemoglobin 18 plus grams; white cells 11,400, differential: myelocytes 1 per cent, juvenile forms 12 per cent, "stab" forms 33 per cent, segmented forms 40 per cent, lymphocyte forms 9 per cent, monocyte forms 5 per cent. Urinalysis: no specimen obtained. Stool examination was not obtained. Blood culture showed no growth. CO₂ combining power was 29 volumes per cent. Agglutination tests for OX19, typhoid and paratyphoid were negative.

Course in Hospital.—The patient was given 750

cc. of plasma, 1,500 cc. of 1/16 M sodium lactate, 200 cc. of 10 per cent glucose, 1,000 cc. of 5 per cent glucose and 10 cc. of adrenal cortical extract. Sulfadiazine therapy was begun. The patient remained extremely ill, became irrational and died ten hours after entering the hospital.

CLINICAL DISCUSSION

Dr. Harry Alexander: We have in these two cases the problem of a similar disease in husband and wife. They became ill at the same time and died within thirty-six hours of one another. We must first determine the nature of the disease. What diagnosis would best fit the known clinical manifestations? Dr.

Wilson, do you have any suggestions?

DR. KEITH WILSON: I suggest that they had some type of rickettisal disease such as Rocky Mountain

DR. ALEXANDER: Which one do you favor?
DR. WILSON: There are many points against both, but I would favor Rocky Mountain spotted fever. The onset of the rash is not typical. The rash usually appears first on the extremities and then on the trunk. However, the picture varies from patient to patient. In fulminating cases the rash may be generalized and come on early. In murine typhus the rash first appears on the neck or the trunk and then spreads. The thing that is puzzling in these cases is the appearance of a similar disease in two members of the same family. So far as I know the tick is the only vector of spotted fever and there is no history of a tick bite. The bedbug and other vermin have not been proven to transmit the disease, and in some texts it is specifically stated that they are not vectors. Most reports of Rocky Mountain spotted fever are in one member of a family only. We do not know for sure what the engorged insect described in the history was.

DR. ALEXANDER: Is there any difference in the rash of spotted fever and of endemic typhus except in distribu-

tion? Do they look alike?

DR. Wilson: I think they do. They may be mistaken easily for one another. The rash in spotted fever is more likely to become hemorrhagic, certainly in the fulminating cases.

DR. ALEXANDER: Do you think that there is much difficulty in distinguishing the rash in these two dis-

eases, Dr. Blattner?

DR. RUSSELL BLATTNER: They are quite similar. I agree with Dr. Wilson that the rash in spotted fever may be more severe and more hemorrhagic than in endemic typhus. It is my impression that a rash is seen more frequently on the face in spotted fever than in typhus. I wonder if others have had the same experience.

Dr. Alexander: In epidemic typhus the rash does not occur on the palms and soles and face. May one see an eruption as severe and as hemorrhagic as in these two patients in endemic typhus?

DR. BLATTNER: I do not think so

Dr. Alexander: Dr. Harford, do you agree? Dr. Carl Harford: Yes.

Dr. Alexander: Dr. Wood, what is your opinion on this point?

Dr. W. Barry Wood, Jr.: Endemic typhus, in general, is a relatively mild disease, as compared to Rocky Mountain spotted fever. The mortality rate is lower and the rash is less extensive and less severe.

DR. ALEXANDER: Those points are pertinent to the diagnosis in this case. If a person has an eruption which is over the entire body and hemorrhagic, with coalescence into ecchymotic spots, the most probable rickettsial disease is spotted fever. Do you agree, Dr. Harford?

Dr. Harford: I think you are right, but one should remember that in children the rash in spotted fever is apt not to be hemorrhagic.

DR. BLATTNER: That fact has been observed by Dr. J. V. Cook. Children do not as a rule become extremely ill with spotted fever. The disease is milder than in these two patients. The mortality is also lower.

DR. ALEXANDER: If we make a diagnosis of spotted fever we must assume that each of the individuals was bitten by a tick, probably a wood tick. Is Dr. Wilson correct in his statement that the tick is the only vector of the disease?

Dr. Blattner: The dog tick as well as the wood tick may transmit the rickettsia.

DR. ALEXANDER: With these assumptions, do the picnic in the country four weeks before the illness and the finding of a blood sucking insect in the bed three weeks before the onset become pertinent? Is that too long an incubation priod for spotted fever? What is the incubation period?

DR. BLATTNER: It is usually from three to seven days.

Dr. Alexander: The extreme limit is given by most authorities as fourteen days.

DR. HARFORD: The more severe the illness the shorter the incubation period.

Dr. ALEXANDER: That is correct.

Dr. Harford: In the severe cases the incubation

period may be as short as two or three days.

Dr. Alexander: If the diagnosis is Rocky Mountain spotted fever, we must assume that both patients were bitten by a tick. Dr. Harford, must a tick feed several hours before it can infect an individual?

Dr. Harford: According to Parker, the virus in the tick must be reactivated by the body temperature of a person. The time required for this process is often shorter in the summer than in the winter.

Dr. Alexander: It then takes some hours for the rickettsiae in the tick to be reactivated. After the rickettsiae get into the blood stream what happens?

DR. HARFORD: Presumably the organisms attach

themselves to the walls of the blood vessel. DR. ALEXANDER: How long after infection may the

organism be recovered in the blood stream? Dr. Harford: They may be recovered during the

first week. Dr. ALEXANDER: That is a most relevant point in this case because a nurse pierced her finger with a needle which has been used to take a blood culture from these patients. She was given serum and when she had an

acute febrile illness about a week later, the staff was happy that she merely had serum sickness. Ten days after onset was considered a long time for the organism to be present in the blood stream. Dr. Harford, what organs specifically are involved?

Dr. Harford: The skin, brain, lungs and heart.

Dr. Alexander: Does the negative agglutination test of OX19 on the tenth or twelfth day of the disease raise any doubt in your mind as to the diagnosis?

Dr. Harford: No, because the Weil-Felix reaction often does not become positive in fatal cases of spotted

Dr. ALEXANDER: When do antibodies appear?

Dr. Harford: Usually on the tenth to the twelfth day. Dr. Alexander: Antibodies may be demonstrable

earlier, may they not?

Dr. Harrord: That raises the question of the titer of the Weil-Felix reaction which is significant. Some authorities say that a positive test is not diagnostic unless the titer is at least 1 to 320. It is said by others that the important factor is whether or not there is a change in titer. If it goes from 0 to 1 to 40, and this appears on the seventh day, one might be skeptical.

Dr. Alexanders Your point is then, that if a titer in-

creases after it is low, it would be significant?

Dr. Harford: It would be significant in my opinion. Dr. Alexander: Do you agree with Dr. Harford, Dr. Wood?

Dr. Wood: Yes.

Dr. Alexander: It is my understanding that the final titer may not be high but that an increase in titer during observation is most significant.

DR. BLATTNER: I have seen cases in which the titer

did not go above 1 to 80.

Dr. Harford: The titer may never get high. There may be a positive agglutination with both OX2 and OX19, or the OX19 may rise to a greater degree. The OXK in scrub typhus is said to be more specific than the OX19 or OX2 is in spotted fever. The men who are doing research in complement fixation at the present time point out the difficulty in making a diagnosis on the basis of the Weil-Felix reaction.

Dr. Alexander: The complement fixation reaction is then more specific and accurate?

Dr. Harford: That is correct.

Dr. Alexander: May a positive Kahn reaction be nonspecific in Rocky Mountain spotted fever?

Dr. Harford: Yes, it may.

Dr. ALEXANDER: If the negative agglutination tests have no relevance in this case, we might consider other features. What lesion causes the characteristic rash?

Dr. Harford: The rash is caused by the thrombi in in the peripheral vessels.

Dr. Wood: The rickettsiae of Rocky Mountain spotted fever involve the media of the blood vessels in contrast to the typhus group in which the endothelium alone is involved. Pathologists distinguish typhus from Rocky Mountain spotted fever by examining the blood vessels and finding the rickettsiae in the media or in the endothelium. It is my impression that the rash is due to injury to the vessel wall, causing thrombosis and hemorrhage.

DR. BLATTNER: Hemorrhage into the skin is seldom seen in children, but there is a maculopapular type of eruption. How does this fit in with the idea of actual thrombosis or hemorrhage?

Dr. Wood: Dr. Alexander, perhaps Dr. Moore will comment on the pathology of the eruption Dr. Blattner describes.

DR. ROBERT MOORE: It should be edema of the tissues, cellular infiltration and congestion of the blood vessels in contrast with true petechiae in which there is hemorrhage into the tissue. This is a logical explanation and not one based on observation.

Dr. Alexander: One of these patients displayed a high right diaphragm which was described as being in the second interspace. Dr. Goldman, if an individual has a high right diaphragm with some dullness to percussion, what are the possible explanations?

Dr. ALFRED GOLDMAN: The high right diaphragm could give rise to the dullness, diminished breath sounds and moisture. This would indicate that the diaphragm was raised due to a large liver or something under the diaphragm. There is the possibility of a foreign body in the lung itself, which is not characteristic of Rocky Mountain spotted fever. If the high right diaphragm were due to a foreign body in the lung, we might have to assume an atelectasis of the lower lobe. There is the possibility that this woman had always had a high right diaphragm.

Dr. Alexander: This patient's diaphragm was too high for an atelectasis of the lung, was it not?

Dr. GOLDMAN: That is true.

Dr. Alexander: Dr. Smith, how would you account for the fact that the size of the heart was normal and yet the circulation time was prolonged and there was a high venous pressure?

Dr. John Smith: This would indicate an acute myocardial insufficiency on the basis of overwhelming

Dr. Alexander: You are assuming a cardiac dilatation with a high venous pressure and slow circulation time. The hemoconcentration was eight million red cells in one case and high in the other. Could the increased blood viscosity be a factor?

Dr. Smith: I do not believe that it would have any

Dr. Alexander: The blood pressure was very low and the pulse was 90/70.

Dr. Llewellyn Sale, Jr.: This patient had been informed that she had high blood pressure and did receive large amounts of parenteral fluids which may have contributed to cardiac failure.

Dr. Alexander: Yet the roentgenogram showed a

normal heart.

DR. JOHN SMITH: I think it has been found that myocardial failure may occur without the appearance of the heart changing to any great degree.

Dr. Alexander: I quite agree with your statement, Dr. Smith. We must now consider the patient's jaundice. Dr. Taussig, will you comment on this symptom?

Dr. Barrett Taussig: Lesions involving the liver

may have caused the patient's jaundice.

Dr. Alexander: A focal necrosis or degeneration may have caused the jaundice or enough blood may have been extravasated into the skin to cause a nonobstructive jaundice. What about specific treatment? Are serums or other forms of specific treatment valid, Dr. Blattner?

Dr. Blattner: The immune serum is of little value in clinical cases. Some individuals also are dubious about its prophylactic value. Vaccines are considered

good protective measures.

DR. ALEXANDER: A recent article in the Journal of the American Medical Association reviewed the treatment of typhus fever with para-aminobenzoic acid. The cases summarized were few in number but the results were impressive. Are there further comments concerning this case?

Dr. Wood: Dr. Alexander, I would like to discuss again the engorged bedbug that was considered to be the vector. If we could be sure this was the carrier, we might have the key to our questions. Dr. Wilson pointed out that it is rare to have the disease in two members of the same family. To make a diagnosis of Rocky Mountain spotted fever, we almost have to prove that both patients were bitten by the same insect. If we do not make this assumption, we would have to say that they were both bitten by infected ticks at the same time. As Dr. Harford pointed out, if an insect engorged with blood bites a second individual, that person will become infected. This bite which occurred only ten days before the onset of illness was probably the causal factor of the disease in the two patients. Is not that an important factor in the diagnosis?

Dr. Harford: Parker, who is director of the Rocky Mountain Laboratory, has found that two individuals may become infected by the bite of the same tick. When the tick feeds on the second person, it does not have to be reactivated.

Dr. Wood: An individual may become infected by pulling an infected tick from the body of another person and crushing the insect between his fingers.

DR. BLATTNER: If a tick is partially engorged it can feed on a second host. We have observed this in our laboratory studies.

Dr. Harford: At the time these individuals were ill, the question of toxoplasmosis arose and the organism was looked for in the bone marrow. This diagnosis is unlikely in these patients. In the first place, there are only two cases reported in which toxoplasmosis produced this syndrome, and in the second place, the organisms were not found. I would like to ask if these patients had a rash on the scalp, palms and soles. In Pinkerton's cases, a rash in these areas was not present.

Dr. Sale: The one patient did not have rash on the palms or soles. The other patient did have some. There was no rash on the head or neck of either patient.

Dr. Alexander: Dr. Harford's point about toxoplas-

mosis is well taken. Pinkerton described two cases in which toxoplasmosis gave a clinical syndrome similar to that of spotted fever. However, the organisms were found in the bone marrow.

DR. HARFORD: Pinkerton did point out that the

organisms are difficult to demonstrate.

CLINICAL DIAGNOSIS

Rocky Mountain spotted fever.

DR. ALEXANDER'S DIAGNOSIS

Rocky Mountain spotted fever.

ANATOMIC DIAGNOSIS

Acute arteritis with swelling of the endothelium and thrombi in the small arteries and capillaries of the skin, myocardium, kidney and adrenals.

Petechiae and ecchymoses of the skin of the trunk

and extremities.

Focal hemorrhages in the bulbar conjunctiva, peria-

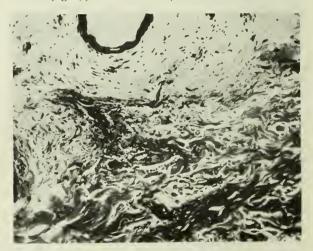
ortic connective tissues, pericardium and epicardium.

Bronchopneumonia of the lower lobe of the left

PATHOLOGIC DISCUSSION

Dr. Robert Moore: The gross pathologic changes in rickettsial disease, as this was proven to be, are most inconspicuous. Most patients die between the ninth and twelfth day if they die of the active disease, and one finds at that stage only petechiae and ecchymoses throughout the tissues. There are no distinctive lesions upon which one can make a diagnosis.

Microscopically, the changes are for the most part distinctive, although one cannot be absolutely certain on the basis of microscopic examination of the tissue. The first section is from the skin of an active lesion in which there is edema of the tissues just beneath the epidermis, cellular infiltration around the blood vessels and around the hair follicle and necrosis of the wall of a small capillary, with a thrombus in the lumen (fig. 1); in other words, the characteristic lesion



which has been described as thrombonecrosis of the smaller blood vessels throughout the body in spotted fever. Mononuclear cells, plasma cells and lymphocytes with only an occasional polymorphonuclear leukocyte are the dominant cells in the rickettsial diseases.

The testis is one of the best places to find the characteristic lesion in the male sex. There is necrosis of the vascular wall with the beginning of a thrombus within the lumen and extensive infiltration of the adventitial tissue with lymphocytes and mononuclear cells and no polymorphonuclear leukocytes (fig. 2). The



Fig. 2.

necrosis is evident by the breaking up of the nuclei of the media of the blood vessels. We have stained these sections with Giemsa's stain for rickettsiae, and I believe that there are rickettsiae there but the identification of rickettsia in any type of rickettsial disease in the tissue is an extremely difficult procedure. In our preparation I believe that there are small cocco-bacillary bodies within the cells of the media of this blood vessel. The finding of rickettsial bodies in a smooth muscle cell in the wall of a blood vessel makes the diagnosis of Rocky Mountain spotted fever as distinguished from all other rickettsial diseases. The rickettsiae in other diseases are limited to the endothelial cells and do not invade the smooth muscle cells.

In the meninges there is beginning inflammation in the wall of the small blood vessel (fig. 3). This is



Fig. 3

characteristic and here a small mural thrombus has formed on the wall. We have cut at least six sections of the brain in an attempt to find the characteristic rickettsial nodule within the cerebral substance and I have to report to you that I have not found it. It is not present in all cases. It has been present in but one of the three cases of spotted fever that we have studied at autopsy here. In epidemic typhus fever, the nodule is almost always present and in scrub typhus it is more abundant than in other types of rickettsial disease.

In the kidney there is a lesion characterized by cellular infiltration and edema of the interstitial tissue and hemorrhage into the tubular lumens, probably as a result of thrombonecrosis of the capillaries of the glomeruli (fig. 4). There is, in addition, considerable tubular damage.

Now to consider some of the questions brought up during the discussion: One of the characteristic lesions of all rickettsial diseases, probably more conspicuous in scrub typhus than in any other, is an interstitial myocarditis. Both of these patients showed a slight interstitial myocarditis as seen in the sections by edema and cellular infiltration of the mononuclear cells.

Upon reexamination of typhus material from the last war the same lesion has been found in epidemic typhus and it is the opinion of those who have worked on it that this myocarditis alone cannot account for the low

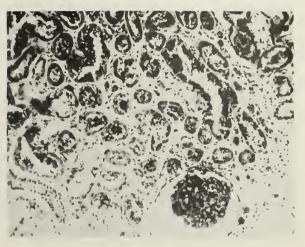


Fig. 4.

blood pressure and the signs and symptoms of a deficient circulation but that it makes a very considerable contribution. In the Southwest Pacific, the terminal stages of scrub typhus are marked by this type of collapse with circulatory failure. There are other factors such as the renal lesion.

I would like to comment on the use of immune serum not in relation to Rocky Mountain spotted fever, but in relation to typhus. There has been some success in the use of hyperimmune rabbit serum in the treatment of typhus fever of the epidemic louse-born variety. Para-aminobenzoic acid holds considerable hope of development in that it influences the metabolism of the cells of the body and renders those cells more resistant to growth of the rickettsiae. I believe that this approach to the problem offers considerable hope.

We found no evidence of syphilis in these individuals. There are many procedures that may be used for the laboratory diagnosis of spotted fever and typhus. The complement-fixation test is most reliable for a specific diagnosis. The Weil-Felix reaction is reasonably satisfactory, but not as diagnostic as the complement fixation test. The isolation of the organism must depend upon the taking of the sample of blood before the end of the seventh day and injecting not less than 5 cc. intraperitoneally into a male guinea pig. The guinea pig does not invariably die as the organism may be of low virulence. The temperature should be taken once or twice a day for at least six to eight days. If the temperature increases the animal should be sacrificed and blood or spleen taken and put into another animal. The fluid in the tunica should be stained for rickettsiae.

CASE 58

PRESENTATION OF CASE

A 67 year old white woman entered Barnes Hospital on August 9 and died September 4, 1944.

Chief Complaint.—Pain in left forearm, abdominal pain and swelling of the right eye.

Family History.—The patient's mother and oldest daughter died of tuberculosis. Another daughter had tuberculosis but the process was arrested. One brother died of a "stroke," another brother of Bright's disease.

Past History.—The patient had typhoid fever and malaria at the age af 18. She remained apparently well thereafter until the age of 52 when she suddenly coughed up blood and then developed weight loss and fever. The diagnosis of pulmonary tuberculosis with cavitation of the left lung was made. Sputum examinations were positive. The patient remained in bed at home for two and a half years. The process then appeared to be arrested until six years prior to the present illness, when it reappeared. She spent six months in a sanitarium and again apparently recovered. At that time a phrenic nerve section was done. Sputum examinations were negative thereafter. A few months before admission, cough with purulent sputum reappeared. Systemic review revealed that the patient had had a purulent discharge from the left ear for many years. She had recently developed considerable frequency and urgency of urination. There had been a weight loss of 25 pounds during the last fifteen months.

Present Illness.—About six months previous to admission, the patient first noted pain in the left upper forearm. This gradually became worse and a swelling developed over the site of the pain. Five months previous to admission she began to suffer episodes of generalized abdominal cramping pain occurring usually at night and lasting from two to three hours. It seemed more localized at times in the right lower quadrant than elsewhere. It was not influenced by intake of food. Bowels were somewhat constipated but mineral oil regulated them. No notation was made of the character of the stools. Two months previous to admission she noticed puffiness and watering of the right eye when she awakened in the morning. Soon thereafter the eye began to protrude and the swelling about the eye increased. Vision on that side gradually became impaired. She apparently could read although double vision was present.

Physical Examination.—Temperature was 37 C., pulse 96, respiration 22, blood pressure 184/100. The patient was a slightly obese woman who appeared chronically ill. She was apparently intelligent and cooperative. The right eye obviously protruded. The skin about it was reddened and attached to a bony tumor mass above it. This mass appeared to involve the upper orbit. Exquisite tenderness was elicited over the mass for about 6 cm. superiorly from the orbit. Both pupils reacted normally. There was limitation of movement in all directions of the right eye. The fundus showed haziness of the disk and the cup was obliterated. The veins were tortuous. The left eye appeared normal. Both visual fields were normal. There was no maxillary

sinus or mastoid tenderness. Hearing was diminished on both sides. The mouth was edentulous. The trachea was in the midline. No cervical nodes were palpable. On percussion, the left diaphragm did not appear to descend. The lungs were resonant. Numerous ronchi were heard throughout both lungs and rales after coughing appeared at both apices. The heart appeared slightly enlarged to the left. The sounds were of poor quality, the rhythm was regular; there were no murmurs or accentuations. Examination of the abdomen produced moderate voluntary muscle guard. No organs or masses were felt. There was some tenderness in the right lower quadrant. Vaginal examination revealed a rectocele and an eroded cervix. A polyp protruded from the anus with an attachment 2 cm. up in the ampulla. There were many small superficial varicosities over the legs. The reflexes were declared physiologic.

Laboratory Findings.—Blood count: red cells 4,540,000, hemoglobin 14 grams, white cells 14,800, differential count: "stab" forms 11 per cent, segmented forms 65 per cent, lymphocytes 16 per cent, monocytes 8 per cent. Urinalysis: albumin negative; sugar 2 plus, specific gravity 1.023, microscopic normal. Stool examination: guaiac 4 plus, benzidine 4 plus; Kahn reaction negative. Blood chemistry: sugar, fasting 244 mg. per cent; 2½ hour specimen 365 mg. per cent; calcium 11.7 mg. per cent; phosphorous 3.7 mg. per cent; serum phosphatase 8 Bodanski units. Nonprotein nitrogen 17 mg. per cent. Sputum: no acid fast organisms. Blood culture showed no growth. Electrocardiogram was indeterminate. Roentgenograms: chest: There was a fibroid process involving the left apex. Impression was pulmonary tuberculosis, old. There was a shadow in the right lung field suggesting a metastatic tumor. Skull: At the midpoint of the parietal bone was a dark area of destruction 1 cm. in diameter. A hyperostosis frontalis interna was present. In the postero-anterior view there was a destructive process involving the frontal bone on the right. Left forearm: Extensive tissue swelling appeared over a large destructive process involving the upper third of the shaft of the radius with involvement of the ulna. The appearance was that of an endothelioma. Barium enema was unsatisfactory. Both femura, both legs and both upper extremities showed no additional lesions.

Course in Hospital.—Six days following admission an irregular temperature developed ranging between 38 C. and 39 C. This subsided ten days later, but the week before death it again gradually rose to 40.6 C. A few days after admission a large, definite, tender mass was felt easily in the right lower quadrant. On a calculated diet the blood sugar remained consistently elevated. There was a glycosuria from 1 plus to 4 plus the first two weeks which gradually disappeared. A biopsy specimen was taken from the lesion of the forearm. The section showed a clump of invasive malignant epithelial cells which in some areas showed a slight

attempt at gland formation while, in most cases, cells appeared to be growing in small solid clumps. The stroma was composed of striated muscle which had undergone fibrous replacement, and in areas showed degenerative changes with giant cell formations. The islands of invading cells were surrounded by sclerotic fibrous tissue. It was difficult to hazard an opinion from this slide as to the primary source of the carcinoma and a diagnosis of metastatic adenocarcinoma, primary site indeterminate, was made. The white blood cells remained consistently elevated. Three sternal marrow punctures revealed no abnormalities. The patient was placed on sulfadiazine and a blood level of 7.1 mg. per cent was maintained. Repeated examinations of the sputum for tubercle bacilli were negative. A retention catheter was inserted because of urinary retention. Specimens showed albumin from time to time varying from 1 plus to 4 plus. On consultation with Dr. Sherwood Moore, roentgen ray therapy was not advised. The patient's course was rapidly downhill, and a few days before death she developed evidence of bronchopneumonia. During her stay her left forearm became progressively more swollen, but at no time did she complain of pain. Swelling of the right eye became more marked until she could no longer see with it. The abdominal mass remained unchanged.

CLINICAL DISCUSSION

DR. HARRY ALEXANDER: This patient gave evidence of three diseases, namely, tuberculosis, diabetes and cancer. How may we identify her undiagnosed lesions consisting of an abdominal mass, a mass in the forearm and a tumor in the skull with one or more of these diseases? Let us first consider the abdominal mass. Dr. Scheff, what is your opinion concerning the abdominal mass as related to either tuberculosis or cancer?

DR. HAROLD SCHEFF: Cramping abdominal pains in a patient of this age would be indicative of carcinoma. There is also the possibility that she had ileocecal tuberculosis which would give rise to exactly the same picture.

DR. ALEXANDER: Does her history contain evidence which might prove to be a differentiating factor between these two diseases? Is it common to have an ileocecal mass in tuberculosis?

Dr. Scheff: It is not common, but the hyperplastic variety may occur which will give rise to a granulo-matous process and may simulate a carcinoma.

DR. ALEXANDER: Would the absence of diarrhea be against a diagnosis of tuberculosis of the bowel?

DR. Scheff: Not necessarily. Diarrhea is common in tuberculosis involving the small intestine. Diarrhea, however, is not common in tuberculosis of the cecum. The blood in the stools would be present in both diseases.

DR. ALEXANDER: A large palpable mass may be present in noninfectious granuloma of the cecum, may it not?

Dr. Scheff: It may occur, but it is not likely. Actinomycosis should be mentioned because this disease gives rise to a mass in the right lower quadrant.

Dr. Alexander: The stomach, rectum and cecum are common places for carcinoma to arise.

Dr. Scheff: Most patients with carcinoma of the cecum have anemia, and this woman did not.

Dr. Alexander: The anemia arises from bleeding.

There is no toxic factor. It has been stated many times that carcinoma of the right side of the colon is associated with anemia, whereas carcinoma of the left side is not. What is the validity and explanation of such an observation?

Dr. Scheff: I do not know the incidence of anemia in carcinoma of the cecum. However, the anemia is not frequently of the macrocytic type.

DR. ROBERT MOORE: Dr. Alexander, this observation has been made and sounds logical. The fecal stream on the right side is for the most part liquid, and an obstruction will not appear until late. Therefore, the tumors persist for a longer period of time and become larger. There is thus greater opportunity for minimal bleeding and consequent anemia on the right side than on the left side where an obstruction occurs relatively early.

DR. ALEXANDER: That is a good point. It is your belief that the anemia is due to the bleeding and not to any specific toxic factor?

Dr. Robert Moore: That is correct.

DR. ALEXANDER: It is surprising that this patient did not have an anemia when she did have diabetes, carcinoma and tuberculosis. It is Dr. Scheff's opinion that this lesion is due to carcinoma rather than tuberculosis. Are there further suggestions?

Dr. Alfred Goldman: One is less likely to observe blood in the stool in ileocecal tuberculosis of the hyperplastic type. Bleeding is obvious in the ulcerative type, which is characteristic of the lower part of the ileum. That would be a point in favor of carcinoma.

Dr. Alexander: We may assume, then, that this is carcinoma of the cecum. We must now consider a more difficult situation—the lesion of the forearm. Dr. Sherwood Moore has told us that in his opinion this lesion is an endothelioma or endothelial myeloma. Do you feel that these same lesions exist in the skull?

Dr. Sherwood Moore: No, I think those are distinctly of epithelial origin—the one in the frontal bone from extension of a carcinoma in the mucous membrane lining the frontal sinus, and the one in the parietal bone is an embolic metastasis.

Dr. Alexander: Are not these endotheliomata osteolytic, and characteristically in the skull?

Dr. Sherwood Moore: That has not been our experience. Endotheliomata may be osteolytic, but there is no rule. In myeloma the lesion does not spread from bone to bone. If it does occur in multiple foci one can rest assured that there is new development in the marrow tissue of the involved bone.

Dr. Alexander: In an endothelioma, the presumption is that the cells come from the endothelial lining of the blood vessels, or of the lymph channels. This disease occurs in children. How common is it to have this in an adult of 66 years of age?

Dr. Sherwood Moore: In the majority of cases, endothelial myeloma occurs in children, but it can occur in adults

Dr. Alexander: The biopsy taken of the lesion of the forearm showed clumps of epithelial cells with glandular formation, and involved muscle fibers which were distorted. The final opinion was that this was an adenocarcinoma of undetermined origin. We have a slide of such a lesion and it would be most helpful to see it to arrive at a diagnosis. Dr. Moore, would you show it to us?

Dr. Robert Moore: There are three essential components in this tumor. (1) There are epithelial cells arranged individually, or in groups. We must accept the fact that it is a carcinoma, with the high probability that it originated in the respiratory or alimentary tract because of the presence of mucin in the cells. Carcinoma of the lung and stomach are well known to metastasize to the bone. (2) A second component is the fibrous tissue, of which there is a great deal. (3) The third component is skeletal muscle. Skeletal muscle fibers when injured have no power of regeneration. When

the nucleus of the muscle fiber is destroyed, that fiber is destroyed forever. However, if skeletal muscle fibers have been injured, and the nuclei are intact, there is amitotic division of the nuclei and the formation of masses of cytoplasm with multiple nuclei. In the biopsy of this patient, the giant cell represents nothing more than the reaction of the skeletal muscle to injury. The only assistance that we can be, Dr. Alexander, is to say that it is carcinoma.

Dr. Alexander: I was surprised to hear you say, Dr. Moore, that carcinoma of the stomach may metastasize to the bone. I was under the impression that that was

DR. ROBERT MOORE: The probability of spread to the bone is greater in carcinoma of the stomach and rectum

than in any other part of the alimentary tract.

Dr. Alexander: If the cells of this lesion contain mucus, then we may limit the original lesion to adenocarcinoma that metastasized to bone. I would like to ask if the sections contained bony trabeculae.

Dr. ROBERT MOORE: The section did not contain bone and presumably was taken from the tissue over the

bone.

Dr. Alexander: We must now consider tumors that contain mucus which will metastasize to bone. Is it correct that tumors of the cecum do not metastasize to the bone?

Dr. Sherwood Moore: Such a condition is rare.

Dr. Alexander: Then, the two possibilities we may consider are carcinoma of the stomach and carcinoma of the respiratory tract. There are mucous glands in the bronchi. There are certainly mucous glands in the lining of the sinuses. Dr. Sherwood Moore expressed an opinion that we might consider carcinoma of the frontal sinuses.

DR. ROBERT MOORE: It should be pointed out, Dr. Alexander, that most carcinomas of the sinuses are not

mucus-secreting.

DR. ALEXANDER: Could this not be a local lesion of the arm that has invaded the bone?

Dr. ROBERT MOORE: That is not possible. Dr. Alexander: It is felt that mucinous adenocarcinoma comes either from the respiratory or alimentary tract. That leaves the stomach or sinuses. Are there other suggestions or remarks as to what this may be?

Dr. W. Barry Wood, Jr.: We are merely guessing as we do not have any objective evidence as to where the primary site is. One thing that is worth pointing out is something Dr. Robert Moore has emphasized frequently to us: Patients who have one carcinoma are very likely to have another of a different type. Two different types of carcinoma in the same patient is not too uncommon. It seems to me from the discussion thus far, that we must resort to a double diagnosis as far as the carcinoma is concerned, unless you feel that you can make a diagnosis of carcinoma of the cecum with metastases. This latter possibility seems to me to be very unlikely.

DR. ROBERT ELMAN: There have been quite a number

of cases in which metastatic adenocarcinoma has been found in biopsy and then at autopsy no primary lesion

has been demonstrated.

Dr. Alexander: Such a thing happens in carcinoma of the thyroid in which the primary lesion is very small with numerous metastases. I saw the patient we are discussing on rounds last summer. At the time, Dr. David Graham asked the question as to why the patient did not have two or more carcinomas. If this is carcinoma of the cecum, I think it is probable that this woman had more than one carcinoma. The probability of an individual with one cancer developing another cancer is greater than that of a normal individual develop-

ing one cancer. Are there further comments?

DR. BARRETT TAUSSIG: If you think that this bony lesion is not a metastasis from the cecum, where do you

think it does originate?

Dr. Alexander: Dr. Sherwood Moore assures us that this is not a bronchogenic carcinoma. If there is a carcinoma in the respiratory tract, it would have to be in the pharvnx or the sinuses. We are limited, therefore, to carcinoma of the frontal sinus or carcinoma of the stomach, unless there be others of mucous origin. Ovarian tumors are of mucous origin. Must they be considered?

Dr. Robert Moore: They should be considered. It might be important to note that the incidence of multiple tumors in the same person is approximately 6 per cent. The probability of multiple carcinoma involving the same organ system is 15 per cent. The lowest probability is to have multiple carcinomata involving different organ systems. Specifically in this case, the chance of having multiple carcinomata of two different organs of the gastrointestinal tract is greater than having carcinoma of the gastrointestinal tract and of the respiratory tract.

DR. ALEXANDER: With this added information, perhaps we should consider carcinomata of the cecum and stomach most likely, purely on the basis of probability.

CLINICAL DIAGNOSIS

Pulmonary tuberculosis. Carcinoma of cecum with secondary inflammation. Metastatic carcinoma of frontal bone and left radius. Diabetes mellitus. Cystitis and pyelonephritis.

Bronchopneumonia.

DR. ALEXANDER'S DIAGNOSIS

Carcinoma of the cecum and probably of the stomach. Tuberculosis of lung, healed. Diabetes mellitus.

ANATOMIC DIAGNOSIS

Primary carcinoma of the stomach. Primary carcinoma of the ascending colon.

Polyp of the descending colon.

Metastatic carcinoma in a lymph node in the region of the ascending colon.

Metastatic carcinoma of the lung.

Metastatic carcinoma involving the left parietal bone and the right frontal bone and dura mater, with compression atrophy of the right frontal lobe.

Metastatic carcinoma of the perimetrium, myome-

trium and ovaries.

Bronchopneumonia of all lobes of the lungs.

PATHOLOGIC DISCUSSION

Dr. Robert Moore: On the basis of the gross examination, there are at least four possible primary tumors. The tumor of the stomach showing an induration of the wall and ulceration 2 centimeters in diameter is characteristic of a primary carcinoma of the stomach. The lesion in the ascending colon with growth into the lumen, infiltration through the wall and ulceration is typical of a primary carcinoma of the ascending colon. One ovary was enlarged markedly and filled with neoplastic tissue apparently of the epithelial type. The coarsely granular, gray cut surface could indicate metastatic tumor or primary tumor. The lesion inside the cranial cavity which appeared to spring from the dura mater causing absorption of bone externally and compressing the brain internally presented the gross characteristics of a meningioma. I so diagnosed it at the time of the autopsy. On the basis of gross findings, there are three primary tumors and a possible fourth.

The tumor in the wall of the stomach is an indurative type without formation of glands. It is a type of scirrhous carcinoma of the stomach. We may conclude that this patient did have a primary carcinoma of the

The tumor of the ascending colon microscopically has a quite different appearance from the one in the stomach. There is much more tendency toward the formation of glands. It is not nearly so desmoplastic and, again, I think, we may on the basis of the gross and the microscopic observations, and in comparison with tumor of the stomach, arrive at the conclusion that this patient had a primary carcinoma of the ascending colon.

The tumor of the anterior fossa of the skull is not a meningioma, but a metastatic carcinoma. It is metastatic to the dura mater and is growing in both directions from the dura. To determine just which one of these two carcinomas is the site of origin for this metastasis is impossible. The general cellular type of connective tissue resembles that in the stomach much more than that in the colon, so that we may say tentatively without too good proof that the metastasis to the dura mater came from the stomach.

The tumor of the ovary is much more like that in the colon than the stomach, although again one cannot be certain. The difference in the primary tumors is very considerable. The difference in the microscopic structur of the metastases is not nearly as definite. The invasion of the parametrium and the wall of the uterus shows this same type of cell so that one of these tumors, or perhaps both, invaded the peritoneum. Cells became free in the peritoneal fluid and planted themselves on the surface of the pelvic peritoneum and grew into the ovary and the uterus.

In the lung, there are tumor cells in the small lymphatics and blood vessels of the lung, but we were not able to demonstrate any gross tumor nodules. There were several multiple large fibrocaseous nodules of tuberculosis of the primary infection type in the lung. In the apex of the left lung there was reinfection tuberculosis without evidence of activity, although a

cavity was still present.

The diabetes was manifested only by fat infiltration and slight fibrosis of the pancreas. We submit, then, Dr. Alexander, that this patient had two primary tumors, one of the stomach and one in the ascending colon, with wide spread metastases. We are unable to determine with certainty which tumor gave rise to which metastasis.

DR. ALEXANDER: This is a very remarkable case. It is exceptional to have two primary tumors in one individual.

Dr. Elman: What is the probability of a metastasis from a metastasis?

DR. ROBERT MOORE: We see that phenomenon in patients in whom the primary tumor is removed.

Dr. Sherwood Moore: I have observed carcinomatous metases to bones of the lower leg, foot, forearm and hand four times only. Two were metastatic from a squamous cell carcinoma of the uterine cervix.

BOOK REVIEWS

OUT OF THE TEST TUBE. By Harry N. Holmes, Ph.D. Oberlin College. Author of: Have You Had Your Vitamins? General Chemistry; Laboratory Manual of General Chemistry; Introductory College Chemistry; Outline of Qualitative Analysis; Introductory Colloid Chemistry; Laboratory Manual of Colloid Chemistry; Strategic Materials and National Defense; Co-Author of; Elements of Chemistry. Fourth Edition. Revised and Expanded. 103 Illustrations. New York: Emerson Books, Inc., 1943. Price \$3.00. This is a book of some 311 pages including index.

It is a story told in simple language of the contribution of chemistry to daily life, economics, to social relationships, to national defense, and to world affairs. It is written in narrative style and is well illustrated. It takes one from the very beginning of time up to the present. The importance of oxygen, and its utilization in industry and medicine, are completely covered. The subject of water and all its relationships to man are explained. Chemical warfare is completely discussed. Rubber and synthetic rubber are explained. There is a very interesting chapter entitled "The Fall of the House of Uranium," from which we learn much about

radium. Atom smashing and atom-smashing apparatus are discussed. Silks and cellulose, the battle between insects and man, products of the soil, fuel and smoke—all of these subjects are amply discussed. Why we should preserve fats and what we must eat to preserve health are the subjects of several chapters. Anesthetics, yeasts, molds, and bacteria are all given proper consideration. The chemist in crime detection has his day in court in this book. The farm as a factory, minerals and world power, and what the house of the future will look like are all given proper attention.

In short, this book represents the story of chemistry as it relates to modern life. It is highly interesting and informative.

R. B. H. Gradwohl.

CLINICAL AUDIOMETRY. By C. C. Bunch, M.A., Ph.D. Formerly Associate Professor of Otology, Medical School, University of Iowa; Associate in Research Otology, Johns Hopkins University, Professor of Applied Physics of Otology, School of Medicine, Washington University; Associate Director of Central Institute for the Deaf, St. Louis; Research Professor in Education of the Deaf, School of Speech, Northwestern University. With 74 text illustrations. St. Louis; C. V. Mosby Company. 1943. Price \$4.00.

To anyone who knew the author of this monograph and had the privilege of watching him at work it will be axiomatic that a book from his pen is characterized by thoroughness, completeness and a punctilious regard for detail.

From 1917, when he received the degree of Master of Arts from the University of Iowa, until the time of his death which occurred only a day or two after this manuscript was completed, Bunch devoted his life to the study of audiometry and its application to clinical practice. In 1919 in collaboration with L. W. Dean he presented the first continuous pitch-range audiometer before the American Otological Society. This was a generator consisting of a disk with teeth which rotated in a magnetic field at controlled speeds to produce sounds of the required pitch in a telephone receiver.

With the advent of vacuum-tube oscillators his interest turned to the compilation and interpretation of audiograms. Probably his most important contribution was the study and description of curves in traumatic deafness resulting from occupational injury.

This monograph constitutes a manual of the use of the audiometer, including technical phases, the building of a sound proof room and the testing of school children. The section on interpretation of curves is complete and informative and contains many examples from Bunch's extensive collection.

There are sections on the use of residual hearing, the function of the audiometer in selecting a hearing aid and, finally, a historical review of instruments in use from 1882 to the present time.

A. W. P.

Pain. Proceedings of the Association for Research in Nervous and Mental Diseases. December 18 and 19, 1942. New York. With 116 Illustrations and 19 Tables. Baltimore: Williams & Wilkins Company. 1943. Price \$7.50.

Each year this Association devotes its meetings to consideration of some one subject, selecting the contributors according to special qualifications in different aspects of the subject.

In 1942 the subject was "Pain" and considered are such matters as nerve conduction, central representation, the nature of itching, visceral pain, headache, pain in joints and the bladder, the lungs, the digestive tract and other locations and tract section. Altogether the presentation undoubtedly covers the subject quite completely if not exhaustively. The work should be useful to research workers.

L. A.

THE JOURNAL

of the

Missouri State Medical Association

623 Missouri Bldg. Telephone: Newstead 0404-05

\$3.00 a year in advance Subscription - - - -

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent.

DECEMBER, 1944

EDITORIALS

MISSOURI MEDICAL SERVICE

With the naming of the Board of Trustees, it is expected that the plan for medical and surgical care inaugurated by the Missouri State Medical Association will soon be underway.

Board members named so far, in addition to the ten elected Councilors, are as follow: Drs. Carl F. Vohs, Robert Mueller, E. C. Ernst, Raymond O. Muether, Llewellyn Sale, Maurice J. Lonsway and Oliver Abel, St. Louis. The lay trustees from the various districts have not as yet been appointed.

Complete information will be mailed to all members of the Missouri State Medical Association immediately following the meeting of the Board of Trustees which will be in the near future.

MISSOURIANS WIN NOBEL PRIZES

Missouri has been signally honored with two St. Louis men and a former St. Louis physician receiving Nobel Prizes. Dr. Joseph Erlanger, Director of the Physiology Department at Washington University School of Medicine, and Dr. Herbert Spencer Gasser, former Professor of Pharmacology at Washington University and now director of Rockefeller Institute in New York, were recipients of the 1944 award. Dr. Edward A. Doisy, Professor of Biochemistry at St. Louis University School of Medicine, shared the 1943, made after a year's delay, with Dr. Henrik Dam, Copenhagen scientist now at Rochester, New York.

The work of Drs. Erlanger and Gasser was on the function of individual nerves, in the field of electro-physiology of nerves. They used the cathode ray oscillograph and showed that the speed of conduction is correlated with the size of the axon and the greater the diameter of the whole axon, the greater the speed of conduction. They discovered that the various strands in a bundle of nerves differ in the impulses they transmit. The work is the basis of brain wave machines which detect certain kinds of brain injury and also is used to measure the recovery of nerves damaged by wounds or operations.

The 1943 award made to Drs. Doisy and Dam was for their fundamental investigation on the chemical nature of vitamin K. Vitamin \breve{K} was discovered and named in 1935 by Dr. Dam after he observed that in newly hatched chicks a fatal hemorrhagic diathesis could be cured or prevented by the administration of a nonsaponifiable nonsterol fraction of hog liver or alfalfa. Later it was observed that the delayed clotting time of the blood was due to a low prothrombin content. Dr. Doisy showed that there are at least two naturally

occurring substances which have similar physiologic properties. These are now called vitamins K1 and K2. These studies have led to the use of vitamin K in the hemorrhagic states associated with ulcerative colitis, sprue, celiac disease, obstructive jaundice and in the treatment of the physiologic hypothrombinemia of the

newborn which exists during the first week of life.

The medical profession of Missouri pays tribute to all men who add to the medical knowledge of the time and is proud that two of the recipients of that honor, the Nobel Prize, are a Missouri physician and a Missouri scientist.

NEWS NOTES

Dr. Carl V. Moore, St. Louis, has been appointed to the Army Epidemiological Board.

Drs. W. A. Bloom, Fayette, and Robert Mueller, St. Louis, spoke at a meeting of the Missouri Farm Federation in Jefferson City, November 9.

Dr. W. W. Bauer, Chicago, Director of the Bureau of Health Education of the American Medical Association, spoke on "Health for Today" before the Sedalia Rotary Club October 16.

Drs. Howard B. Goodrich, Hannibal, and Louis H. Jorstad, St. Louis, appeared on the program of a district training school conducted by the Field Army of the American Cancer Society at Hannibal on October 18 and 19. Dr. Goodrich spoke on "Message from the National" and "Relation of the Field Army to National Defense" and Dr. Jorstad spoke on "Recent Trends in Cancer Research" and "Medical Leadership a Neces-

The St. Louis Surgical Society met October 25 at Barnes Hospital, St. Louis. The following program was presented: "Suprapubic Prostatectomy," Dr. D. K. Rose, St. Louis, discussed by Dr. Rogers Deakin, St. Louis; "Nutritional Recovery Following Massive Intestinal Resection," Dr. Robert Elman, St. Louis; "The Dangers of External Skeletal Traction," Dr. J. Albert Key, St. Louis, discussed by Dr. H. L. Thieme; "The Surgical Treatment of Functional Obstruction of the Esophage." Dr. Nathan A. Womack, St. Louis. Dr. Evarts A. Graham, St. Louis, presided.

RANDOM OBSERVATIONS

BY A ROVING REPORTER

Medicine moves forward in giant strides. A few years ago antisera against the pneumococcus and meningococcus were hailed as great advances in the therapy of pneumonia and meningitis. Health departments undertook to manufacture and furnish serum free of charge. Last month the United States Army took these two sera off the standard list of supplies. The statement was: "In view of the high effectiveness of sulfonamide drugs and penicillin in treating such infections, these antisera are no longer needed for therapeutic use."

Some months ago your reporter commented on the problem of medical education in its orientation to military surgery. The opinion was expressed that the undergraduate curriculum should continue to give a broad foundation in medicine without too much emphases on battle casualties. The Surgeon General reports for more than 36,000 evacuees to the United States that the primary cause of evacuation in more than 80 per cent of the cases was disease. The doctor, civilian or military, is still concerned with diseases.

It is time that some definite plans are made for postgraduate medical education. Estimates of the Council on Medical Education of the American Medical Association are for 9,720 residencies in a two year period above the normal.

Those concerned with the clinical evaluation of a chemotherapeutic agent may well read the paper by Hinshaw and Feldman in the September American Review of Tuberculosis. Optimism is commendable but control of scientific observations is necessary.

One never knows when some obscure observations will be valuable in clinical medicine. Hurst a few years ago observed that influenza virus agglutinated the red cells of the embryo chick. The next step was to show that immune serum will inhibit the agglutination. Now, we have an easily determined test for immune bodies in influenza, which can be used on the wards of a hospital.

Where is there a better place in the world to live? Never sell a country short which in 1940 have 32,000,000 passenger cars and trucks, had planes that carried three million passengers and had thirty-seven million single family dwellings of which 78 per cent had electric lights, 83 per cent had a radio and 44 per cent had mechanical refrigeration equipment. Never before has there been so much for so many.

Even if nothing else comes of the war, Americans, both at home and abroad, will have learned a lot of geography. How many ever heard of Guadalcanal or Leyte? And who, now, will ever forget them?

Orchids for the month to the Army Transport Command. The Journal of the American Medical Association reports that they fly one and three quarters tons of fresh blood from the Atlantic seaboard to Paris every day.

The sixty-four dollar question: How to get the modern medical graduate to set up practice in small urban and rural communities. The man who discovers an answer to this question should be decorated by society.

Famous extemporaneous statements: "St. Louis has won the intellectual world series."—Father Schwitalla, when informed that Dr. Doisy and Dr. Erlanger had been awarded the Nobel Prize. The congratulations of this column are extended to the Nobel Laureates and to the universities which so arranged affairs that their faculties could do research worthy of consideration for this highest of honors.

COUNCILOR DISTRICT AND SOCIETY PROCEEDINGS

ASSOCIATE EDITORS: COUNCILORS OF THE TEN COUNCILOR DISTRICTS

EIGHTH COUNCILOR DISTRICT

WALLIS SMITH, SPRINGFIELD, COUNCILOR

The second War-Time Graduate Medical Meeting was held at O'Reilly General Hospital, Springfield, October 27. The meeting was held in cooperation with the Regional Committee War-Time Graduate Medical Meetings. Civilian physicians of the Eighth and Ninth Councilor Districts were guests.

Councilor Districts were guests.

In the afternoon the following clinics were presented:
"Orthopedic," conducted by Dr. Frank Dickson. Kansas
City; "Neurosurgical," by Dr. Ernest Sachs, St. Louis;
"Maxillofacial Plastic," by Dr. Earl Padgett, Kansas

City; "Ophthalmologic," by Dr. Lawrence Post, St. Louis. These were followed by an inspection of the hos-

nital.

Following a bountiful buffet dinner, the program included "The Future of Medical Practice in Missouri," Dr. Robert Mueller, St. Louis, discussed by Dr. Wallis Smith, Springfield; "Rupture of the Cervical Intervertebral Disk, and Its Relation to Hypertrophic Arthritis," Major Francis Murphy, M. C., discussed by Dr. Ernest Sachs, St. Louis; "A Survey of the Probable Etiologic Factors of Uveitis," Captain Donald Swift, M. C., discussed by Dr. Lawrence Post, St. Louis; "Pedicles and Flaps in Wounds of the Extremities," Major Julius Newman, M. C., discussed by Dr. Earl Padgett, Kansas Cit… "War Wounds of the Extremities," Captain Robert Keiser, M. D., discussed by Dr. Frank Dickson, Kansas City.

More than 300 physicians attended the meeting from throughout the state including several officers of the

Association.

BOOK REVIEW

AN INTRODUCTION TO MEDICAL MYCOLOGY. By George M. Lewis, M.D., Associate Attending Physician (Dermatology), The New York Hospital; Assistant Professor of Clinical Medicine (Dermatology), Cornell University Medical School; Attending Dermatologist to St. Clare's Hospital; Visiting Dermatologist to Welfare Hospital, etc., and Mary E. Hopper, M.S., Research Fellow in Medicine, Cornell University Medical School. Chicago: The Year Book Publishers, Inc. 1943. Price \$6.50.

This monograph is a welcome issue in the field of medicine and particularly to the dermatologist as it makes definite stride in clearing up much of the confusion which exists regarding the mycoses in the prac-

tice of medicine today.

The contents of this book are divided roughly into two parts, the first of which deals with the clinical, theoretic and experimental aspects of the subject of mycology. The second part of the book outlines various types of laboratory procedures which may be of value in examining a patient suspected of having one of the various mycoses. The authors have emphasized specifically the more common types of fungi, particularly the more common types of infection and have discussed quite clearly and concisely the clinical characteristics of the varieties which one is apt to see. It is well for the reader to bear in mind that fungus disease plays an important etiologic role of infections as seen in the human race today and is particularly a disabling factor as shown in the armed forces. In addition to giving an adequate clinical description and outlining the various diagnostic procedures following each type of superficial mycoses, there is an outline of treatment and therapy which can be followed. Included in this outline of therapy the authors point out the more accepted variety, the ones in which success is more likely to follow. There is adequate dissertation on the value of the cutaneous test in regard to diagnosis as well as treatment. The dissertation involving the superficial mycoses is well written. It is arranged in excellent fashion and at the end of each type of mycoses there is a bibliography which usually consists of the more basic articles to which one can turn for further reference. At the termination of the discussion on superficial mycoses, one may find a similar discussion on deep mycoses.

There are numerous illustrations present throughout the entire book, some of which are in color.

The book is presented in such a manner that reading is very easy and one does not tire of the various mycoses as they are presented. Each section of the book may be read independently of the other part and a complete understanding secured.

A. E. U.



A	The section Debout XI and I deldowned democities On the	AGE
PAGE	Funsten, Robert V., and Calderwood, Carmelita—Ortho-	158
Abstracts and Digests— Acute Pericarditis—L. R. W	pedic Nursing Gastro-enterology—Bockus	108
Allergic Reaction in the Gallbladder—Eyermann 18	Geschickter, Charles F., and Copeland, Murray M.—	
Carcinoma of the Breast—Ewing and Sugarbaker 173	Diseases of the Breast Methods and	48
Dermatitis and Contact Eczema—Eyermann	Gradwohl, R. B. H.—Clinical Laboratory Methods and Diagnosis	227
from Carrots—Eyermann 172 Ear Drops in Acute Otitis Media—Myers 191	Diagnosis Guide to Practical Nutrition—Wohl and Willard	68
Ewing, Nathaniel D., and Sugarbaker, Everett D.—Car-	Handbook of Nutrition—Council on Foods and Nutrition,	109
cinoma of the Breast	American Medical Association	48
Eyermann, C. H.—Allergic Reaction in the Gallbladder 18—Dermatitis and Contact Eczema	Hashinger, Edward H., and Clendening, Logan—Methods	-
—from Carrots	of Treatment Holmes, Harry N.—Out of the Test Tube	90
—History Taking in Allergy and Occupational Allergy 190	Human Constitution in Clinical Medicine—Draper, Du-	247
—Inhalation Therapy	pertuis and Caughey	108
—Involution Involution	Internal Medicine in General Practice—McCombs	130
Evermann	Jensen, Deborah MacLurg—Sociology and Social Prob-	108
	lems. An Introduction to	100
Ivy Dermatitis—Eyermann 103 Myers, J. L.—Ear Drops in Acute Otitis Media 191	ology	48
Quinine in Respiratory Infections—Werner	Kreuz, Frank P., Jr., and Shaar, C. M.—Manual of Fractures. Treatment by External Skeletal Fixation	90
Sugarbaker, Everett D., and Ewing, Nathaniel D.—	Lewin, Philip—Backache and Sciatic Neuritis	
Carcinoma of the Breast	Lewis, George M.—An Introduction to Medical Mycology 2	
Werner, August A.—Quinine in Respiratory Infections 18	McCombs, Robert Pratt—Internal Medicine in General	196
Acute Cor Pulmonale Complicating Tularemia—Ossman	Practice	130
and Guyot	Grafting of Burns	68
Address of the President—A. W. McAlester, Jr 109 of the President-Elect—Lt. Col. Curtis H. Lohr 110	McLester, James—Nutrition and Diet in Health and Dis-	40
American Medical Association Council on Medical Service	Manual of Fractures. Treatment by External Skeletal	48
and Public Relations—Miscellany	Fixation—Shaar and Kreuz	90
Clinical Conference Inaugurated by Chicago Medical	Manson Bahr, Sir Philip—Synopsis of Tropical Medicine	108
Clinical Conference Inaugurated by Chicago Medical Society—Miscellany 46	Maurice Arthus' Philosophy of Scientific Investigation— Sigerist	212
Conference of Secretaries and Editors—Editorial 21	Medical Malpractice—Regan	174
Fall Conference of the Kansas City Southwest Clincal	Methods of Treatment—Clendening and Hashinger	90
Society—Editorial 192 Session—Editorial 42, 63, 83, 128 192 193	Microscopic Technique in Biology and Medicine— Cowdry	90
Minutes—Editorial	Minor Surgery—Christopher	230
Appendicitis, Diagnostic Features of the First Pain of	Nutrition and Diet in Health and Disease—McLester	48
Acute—Keyes 30 Asthenia, Neurocirculatory—King 215	Orthopedic Nursing—Funsten and Calderwood	$\frac{13c}{247}$
	Pain 2	247
В	Personal and Community Health—Turner	214
Barnard Free Skin and Cancer Hospital Research. Report	and Banks 1	177
for 1943—Cowdry 181	Regan, Louis J.—Medical Malpractice Shaar, C. M., and Kreuz, Frank P., Jr.—Manual of Fractures. Treatment by External Skeletal Fixation	174
Barnett, Lt. Henry L.—Sulfonamides. Mode of Elimination 25	Fractures Treatment by External Skeletal Fixation	90
Black, Donald R.—Experimental Diabetes	Sigerist, Henry E.—Maurice Arthus' Philosophy of Sci-	
Book Reviews— American Medical Association—Handbook of Nutrition 108	entific Investigation	212
An Introduction to Medical Mycology—Lewis 249	Skin Grafting of Burns—Brown and McDowell Sociology and Social Problems, An Introduction to—	68
Applied Dietetics—Stern	Jensen 1	108
Banks, Sam W., and Compere, Edward L.—Pictorial Handbook of Fracture Treatment	Stern, Frances—Applied Dietetics	230
Handbook of Fracture Treatment	nant Tumors	158
Bell, E. T.—Textbook of Pathology	Synopsis of Materia Medica, Toxicology and Pharma-	
Willheim 158	cology—Davison	108
Bockus, Henry L.—Gastro-enterology	Textbook of Medicine—Cecil	191
Grafting of Burns	Pathology—Bell Physiology—Zoethout and Tuttle. Turner, C. E.—Personal and Community Health	158
Grafting of Burns 68 Bunch, C. C.—Clinical Audiometry 247	Turner, C. E.—Personal and Community Health	$\frac{136}{214}$
Calderwood, Carmelita, and Funsten, Robert V.—Orthopedic Nursing	Tuttle, W. W., and Zoethout, William D.—Textbook of	
Caughey, J. L., et al.—Human Constitution in Clinical		
Medicine	Physiology	158
	Willard, John H., and Wohl, Michael G.—A Guide to Practical Nutrition	
Cecil, Russel L.—A Textbook of Medicine	Willard, John H., and Wohl, Michael G.—A Guide to Practical Nutrition	68
Christopher, Frederick—Minor Surgery	Willard, John H., and Wohl, Michael G.—A Guide to Practical Nutrition	
Christopher, Frederick—Minor Surgery	Willard, John H., and Wohl, Michael G.—A Guide to Practical Nutrition Willheim, Robert, and Stern, Kurt—Biochemistry of Malignant Tumors Wohl, Michael G., and Willard, John H.—A Guide to	68 158
Christopher, Frederick—Minor Surgery 230 Clendening, Logan, and Hashinger, Edward H.—Methods of Treatment 90 Clinical Audiometry—Bunch 247	Willard, John H., and Wohl, Michael G.—A Guide to Practical Nutrition Willheim, Robert, and Stern, Kurt—Biochemistry of Malignant Tumors Wohl, Michael G., and Willard, John H.—A Guide to Practical Nutrition	68
Christopher, Frederick—Minor Surgery	Willard, John H., and Wohl, Michael G.—A Guide to Practical Nutrition Willheim, Robert, and Stern, Kurt—Biochemistry of Malignant Tumors Wohl, Michael G., and Willard, John H.—A Guide to Practical Nutrition Zoethout, William D., and Tuttle, W. W.—Textbook of Physiology	68 158 68
Christopher, Frederick—Minor Surgery 230 Clendening, Logan, and Hashinger, Edward H.—Methods of Treatment 90 Clinical Audiometry—Bunch 247 Cardiology with Special Reference to Bedside Diagnosis—Dressler 130 Laboratory Methods and Diagnosis—Gradwohl 227	Willard, John H., and Wohl, Michael G.—A Guide to Practical Nutrition Willheim, Robert, and Stern, Kurt—Biochemistry of Malignant Tumors Wohl, Michael G., and Willard, John H.—A Guide to Practical Nutrition Zoethout, William D., and Tuttle, W. W.—Textbook of Physiology Bredeck, Joseph F.—Syphilis. Public Health Aspects	68 158 68 158
Christopher, Frederick—Minor Surgery 230 Clendening, Logan, and Hashinger, Edward H.—Methods of Treatment 90 Clinical Audiometry—Bunch 247 Cardiology with Special Reference to Bedside Diagnosis—Dressler 130 Laboratory Methods and Diagnosis—Gradwohl. 227 Compere, Edward L., and Banks, Sam W.—Pictorial	Willard, John H., and Wohl, Michael G.—A Guide to Practical Nutrition Willheim, Robert, and Stern, Kurt—Biochemistry of Malignant Tumors Wohl, Michael G., and Willard, John H.—A Guide to Practical Nutrition Zoethout, William D., and Tuttle, W. W.—Textbook of Physiology Bredeck, Joseph F.—Syphilis. Public Health Aspects Bristow, Arthur S.—Editorial	68 158 68 158 7
Christopher, Frederick—Minor Surgery 230 Clendening, Logan, and Hashinger, Edward H.—Methods of Treatment 90 Clinical Audiometry—Bunch 247 Cardiology with Special Reference to Bedside Diagnosis—Dressler 130 Laboratory Methods and Diagnosis—Gradwohl 227 Compere, Edward L., and Banks, Sam W.—Pictorial Handbook of Fracture Treatment 177 Copeland, Murray M., and Geschickter, Charles F.—Dis-	Willard, John H., and Wohl, Michael G.—A Guide to Practical Nutrition Willheim, Robert, and Stern, Kurt—Biochemistry of Malignant Tumors Wohl, Michael G., and Willard, John H.—A Guide to Practical Nutrition Zoethout, William D., and Tuttle, W. W.—Textbook of Physiology Bredeck, Joseph F.—Syphilis. Public Health Aspects. Bristow, Arthur S.—Editorial Budget for 1944—Organization Activities.	68 158 68 158 128 90
Christopher, Frederick—Minor Surgery 230 Clendening, Logan, and Hashinger, Edward H.—Methods of Treatment 247 Clinical Audiometry—Bunch 247 Cardiology with Special Reference to Bedside Diagnosis—Dressler 130 Laboratory Methods and Diagnosis—Gradwohl 227 Compere, Edward L., and Banks, Sam W.—Pictorial Handbook of Fracture Treatment 177 Copeland, Murray M., and Geschickter, Charles F.—Diseases of the Breast 48	Willard, John H., and Wohl, Michael G.—A Guide to Practical Nutrition Willheim, Robert, and Stern, Kurt—Biochemistry of Malignant Tumors Wohl, Michael G., and Willard, John H.—A Guide to Practical Nutrition Zoethout, William D., and Tuttle, W. W.—Textbook of Physiology Bredeck, Joseph F.—Syphilis. Public Health Aspects Bristow, Arthur S.—Editorial	68 158 158 128 90 205
Christopher, Frederick—Minor Surgery 230 Clendening, Logan, and Hashinger, Edward H.—Methods of Treatment 90 Clinical Audiometry—Bunch 247 Cardiology with Special Reference to Bedside Diagnosis—Dressler 130 Laboratory Methods and Diagnosis—Gradwohl 227 Compere, Edward L., and Banks, Sam W.—Pictorial Handbook of Fracture Treatment 177 Copeland, Murray M., and Geschickter, Charles F.—Diseases of the Breast 48 Cowdry, E. V.—Microscopic Technique in Biology and Medicine 90	Willard, John H., and Wohl, Michael G.—A Guide to Practical Nutrition Willheim, Robert, and Stern, Kurt—Biochemistry of Malignant Tumors Wohl, Michael G., and Willard, John H.—A Guide to Practical Nutrition Zoethout, William D., and Tuttle, W. W.—Textbook of Physiology Bredeck, Joseph F.—Syphilis. Public Health Aspects. Bristow, Arthur S.—Editorial Budget for 1944—Organization Activities. Burns, The Physiologic Management of—Williams. Physiologic Problems of—Elman	68 158 158 128 90 205
Christopher, Frederick—Minor Surgery 230 Clendening, Logan, and Hashinger, Edward H.—Methods of Treatment 247 Clinical Audiometry—Bunch 247 Cardiology with Special Reference to Bedside Diagnosis—Dressler 130 Laboratory Methods and Diagnosis—Gradwohl 227 Compere, Edward L., and Banks, Sam W.—Pictorial Handbook of Fracture Treatment 177 Copeland, Murray M., and Geschickter, Charles F.—Diseases of the Breast 48 Cowdry, E. V.—Microscopic Technique in Biology and Medicine 90 Davison, Forrest Ramon—Synopsis of Materia Medica,	Willard, John H., and Wohl, Michael G.—A Guide to Practical Nutrition Willheim, Robert, and Stern, Kurt—Biochemistry of Malignant Tumors Wohl, Michael G., and Willard, John H.—A Guide to Practical Nutrition Zoethout, William D., and Tuttle, W. W.—Textbook of Physiology Bredeck, Joseph F.—Syphilis. Public Health Aspects Bristow, Arthur S.—Editorial Budget for 1944—Organization Activities Burns, The Physiologic Management of—Williams	68 158 158 128 90 205
Christopher, Frederick—Minor Surgery 230 Clendening, Logan, and Hashinger, Edward H.—Methods of Treatment 90 Clinical Audiometry—Bunch 247 Cardiology with Special Reference to Bedside Diagnosis—Dressler 130 Laboratory Methods and Diagnosis—Gradwohl 227 Compere, Edward L., and Banks, Sam W.—Pictorial Handbook of Fracture Treatment 177 Copeland, Murray M., and Geschickter, Charles F.—Diseases of the Breast 48 Cowdry, E. V.—Microscopic Technique in Biology and Medicine 90 Davison, Forrest Ramon—Synopsis of Materia Medica, Toxicology and Pharmacology 196	Willard, John H., and Wohl, Michael G.—A Guide to Practical Nutrition Willheim, Robert, and Stern, Kurt—Biochemistry of Malignant Tumors Wohl, Michael G., and Willard, John H.—A Guide to Practical Nutrition Zoethout, William D., and Tuttle, W. W.—Textbook of Physiology Bredeck, Joseph F.—Syphilis. Public Health Aspects. Bristow, Arthur S.—Editorial Budget for 1944—Organization Activities. Burns, The Physiologic Management of—Williams. Physiologic Problems of—Elman	68 158 158 128 90 205
Christopher, Frederick—Minor Surgery 230 Clendening, Logan, and Hashinger, Edward H.—Methods of Treatment 247 Clinical Audiometry—Bunch 247 Cardiology with Special Reference to Bedside Diagnosis—Dressler 130 Laboratory Methods and Diagnosis—Gradwohl. 227 Compere, Edward L., and Banks, Sam W.—Pictorial Handbook of Fracture Treatment 177 Copeland, Murray M., and Geschickter, Charles F.—Diseases of the Breast 48 Cowdry, E. V.—Microscopic Technique in Biology and Medicine 90 Davison, Forrest Ramon—Synopsis of Materia Medica, Toxicology and Pharmacology 196 Diseases of the Breast—Geschickter and Copeland. 48 Doctor Takes a Holiday, The—Harper 48	Willard, John H., and Wohl, Michael G.—A Guide to Practical Nutrition Willheim, Robert, and Stern, Kurt—Biochemistry of Malignant Tumors Wohl, Michael G., and Willard, John H.—A Guide to Practical Nutrition Zoethout, William D., and Tuttle, W. W.—Textbook of Physiology Bredeck, Joseph F.—Syphilis. Public Health Aspects Bristow, Arthur S.—Editorial Budget for 1944—Organization Activities. Burns, The Physiologic Management of—Williams	68 158 68 158 7 128 90 205
Christopher, Frederick—Minor Surgery 230 Clendening, Logan, and Hashinger, Edward H.—Methods of Treatment 90 Clinical Audiometry—Bunch 247 Cardiology with Special Reference to Bedside Diagnosis—Dressler 130 Laboratory Methods and Diagnosis—Gradwohl 227 Compere, Edward L., and Banks, Sam W.—Pictorial Handbook of Fracture Treatment 177 Copeland, Murray M., and Geschickter, Charles F.—Diseases of the Breast 48 Cowdry, E. V.—Microscopic Technique in Biology and Medicine 90 Davison, Forrest Ramon—Synopsis of Materia Medica, Toxicology and Pharmacology 196 Diseases of the Breast—Geschickter and Copeland 48 Doctor Takes a Holiday, The—Harper 48 Draper, George, et al.—Human Constitution in Clinical	Willard, John H., and Wohl, Michael G.—A Guide to Practical Nutrition Willheim, Robert, and Stern, Kurt—Biochemistry of Malignant Tumors Wohl, Michael G., and Willard, John H.—A Guide to Practical Nutrition Zoethout, William D., and Tuttle, W. W.—Textbook of Physiology Bredeck, Joseph F.—Syphilis. Public Health Aspects. Bristow, Arthur S.—Editorial Budget for 1944—Organization Activities. Burns, The Physiologic Management of—Williams. Physiologic Problems of—Elman C Cancer of the Colon and Rectum, Present Status of—Sugarbaker Patients, Control Factors in the Surgery of—Sugar-	68 158 7 128 90 205
Christopher, Frederick—Minor Surgery 230 Clendening, Logan, and Hashinger, Edward H.—Methods of Treatment 90 Clinical Audiometry—Bunch 247 Cardiology with Special Reference to Bedside Diagnosis—Dressler 130 Laboratory Methods and Diagnosis—Gradwohl 227 Compere, Edward L., and Banks, Sam W.—Pictorial Handbook of Fracture Treatment 177 Copeland, Murray M., and Geschickter, Charles F.—Diseases of the Breast 48 Cowdry, E. V.—Microscopic Technique in Biology and Medicine 90 Davison, Forrest Ramon—Synopsis of Materia Medica, Toxicology and Pharmacology 196 Diseases of the Breast—Geschickter and Copeland 48 Doctor Takes a Holiday, The—Harper 48 Draper, George, et al.—Human Constitution in Clinical	Willard, John H., and Wohl, Michael G.—A Guide to Practical Nutrition Willheim, Robert, and Stern, Kurt—Biochemistry of Malignant Tumors Wohl, Michael G., and Willard, John H.—A Guide to Practical Nutrition Zoethout, William D., and Tuttle, W. W.—Textbook of Physiology Bredeck, Joseph F.—Syphilis. Public Health Aspects. Bristow, Arthur S.—Editorial Budget for 1944—Organization Activities. Burns, The Physiologic Management of—Williams. Physiologic Problems of—Elman C Cancer of the Colon and Rectum, Present Status of—Sugarbaker Patients, Control Factors in the Surgery of—Sugarbaker	68 158 68 158 7 128 90 205 1
Christopher, Frederick—Minor Surgery 230 Clendening, Logan, and Hashinger, Edward H.—Methods of Treatment 90 Clinical Audiometry—Bunch 247 Cardiology with Special Reference to Bedside Diagnosis—Dressler 130 Laboratory Methods and Diagnosis—Gradwohl 227 Compere, Edward L., and Banks, Sam W.—Pictorial Handbook of Fracture Treatment 177 Copeland, Murray M., and Geschickter, Charles F.—Diseases of the Breast 48 Cowdry, E. V.—Microscopic Technique in Biology and Medicine 90 Davison, Forrest Ramon—Synopsis of Materia Medica, Toxicology and Pharmacology 196 Diseases of the Breast—Geschickter and Copeland 48 Doctor Takes a Holiday, The—Harper 48 Draper, George, et al.—Human Constitution in Clinical Medicine 108 Dressler, William—Clinical Cardiology with Special Ref-	Willard, John H., and Wohl, Michael G.—A Guide to Practical Nutrition Willheim, Robert, and Stern, Kurt—Biochemistry of Malignant Tumors Wohl, Michael G., and Willard, John H.—A Guide to Practical Nutrition Zoethout, William D., and Tuttle, W. W.—Textbook of Physiology Bredeck, Joseph F.—Syphilis. Public Health Aspects. Bristow, Arthur S.—Editorial Budget for 1944—Organization Activities. Burns, The Physiologic Management of—Williams. Physiologic Problems of—Elman. C Cancer of the Colon and Rectum, Present Status of—Sugarbaker Patients, Control Factors in the Surgery of—Sugarbaker Cardiac Disorders in an Army General Hospital—King.	68 158 68 158 7 128 90 205 1
Christopher, Frederick—Minor Surgery 230 Clendening, Logan, and Hashinger, Edward H.—Methods of Treatment 247 Cardiology with Special Reference to Bedside Diagnosis—Dressler 130 Laboratory Methods and Diagnosis—Gradwohl. 227 Compere, Edward L., and Banks, Sam W.—Pictorial Handbook of Fracture Treatment 177 Copeland, Murray M., and Geschickter, Charles F.—Diseases of the Breast 48 Cowdry, E. V.—Microscopic Technique in Biology and Medicine 90 Davison, Forrest Ramon—Synopsis of Materia Medica, Toxicology and Pharmacology 196 Diseases of the Breast—Geschickter and Copeland 48 Doctor Takes a Holiday, The—Harper 48 Draper, George, et al.—Human Constitution in Clinical Medicine 108 Dressler, William—Clinical Cardiology with Special Reference to Bedside Diagnosis 130 Durgertuis C. W., et al.—Human Constitution in Clinical 130	Willard, John H., and Wohl, Michael G.—A Guide to Practical Nutrition Willheim, Robert, and Stern, Kurt—Biochemistry of Malignant Tumors Wohl, Michael G., and Willard, John H.—A Guide to Practical Nutrition Zoethout, William D., and Tuttle, W. W.—Textbook of Physiology Bredeck, Joseph F.—Syphilis. Public Health Aspects. Bristow, Arthur S.—Editorial Budget for 1944—Organization Activities. Burns, The Physiologic Management of—Williams. Physiologic Problems of—Elman C Cancer of the Colon and Rectum, Present Status of—Sugarbaker Patients, Control Factors in the Surgery of—Sugarbaker Cardiac Disorders in an Army General Hospital—King. I Case Reports of the Barnes Hospital—Wood and Moore 10, 34, 54, 75, 97, 119, 166, 184, 206, 221, 2	68 158 68 158 7 128 90 205 1 1 49 112 197
Christopher, Frederick—Minor Surgery 230 Clendening, Logan, and Hashinger, Edward H.—Methods of Treatment 247 Cardiology with Special Reference to Bedside Diagnosis—Dressler 130 Laboratory Methods and Diagnosis—Gradwohl. 227 Compere, Edward L., and Banks, Sam W.—Pictorial Handbook of Fracture Treatment 177 Copeland, Murray M., and Geschickter, Charles F.—Diseases of the Breast 48 Cowdry, E. V.—Microscopic Technique in Biology and Medicine 90 Davison, Forrest Ramon—Synopsis of Materia Medica, Toxicology and Pharmacology 196 Diseases of the Breast—Geschickter and Copeland 48 Doctor Takes a Holiday, The—Harper 48 Draper, George, et al.—Human Constitution in Clinical Medicine 108 Dressler, William—Clinical Cardiology with Special Reference to Bedside Diagnosis 130 Durgertuis C. W., et al.—Human Constitution in Clinical 130	Willard, John H., and Wohl, Michael G.—A Guide to Practical Nutrition Willheim, Robert, and Stern, Kurt—Biochemistry of Malignant Tumors Wohl, Michael G., and Willard, John H.—A Guide to Practical Nutrition Zoethout, William D., and Tuttle, W. W.—Textbook of Physiology Bredeck, Joseph F.—Syphilis. Public Health Aspects. Bristow, Arthur S.—Editorial Budget for 1944—Organization Activities. Burns, The Physiologic Management of—Williams. Physiologic Problems of—Elman C Cancer of the Colon and Rectum, Present Status of—Sugarbaker Patients, Control Factors in the Surgery of—Sugarbaker Cardiac Disorders in an Army General Hospital—King. Case Reports of the Barnes Hospital—Wood and Moore	68 158 68 158 7 128 90 205 1 1 49 112 197
Christopher, Frederick—Minor Surgery 230 Clendening, Logan, and Hashinger, Edward H.—Methods of Treatment 90 Clinical Audiometry—Bunch 247 Cardiology with Special Reference to Bedside Diagnosis—Dressler 130 Laboratory Methods and Diagnosis—Gradwohl 227 Compere, Edward L., and Banks, Sam W.—Pictorial Handbook of Fracture Treatment 177 Copeland, Murray M., and Geschickter, Charles F.—Diseases of the Breast 48 Cowdry, E. V.—Microscopic Technique in Biology and Medicine 90 Davison, Forrest Ramon—Synopsis of Materia Medica, Toxicology and Pharmacology 196 Diseases of the Breast—Geschickter and Copeland 48 Doctor Takes a Holiday, The—Harper 48 Draper, George, et al.—Human Constitution in Clinical Medicine 108 Dressler, William—Clinical Cardiology with Special Ref-	Willard, John H., and Wohl, Michael G.—A Guide to Practical Nutrition Willheim, Robert, and Stern, Kurt—Biochemistry of Malignant Tumors Wohl, Michael G., and Willard, John H.—A Guide to Practical Nutrition Zoethout, William D., and Tuttle, W. W.—Textbook of Physiology Bredeck, Joseph F.—Syphilis. Public Health Aspects. Bristow, Arthur S.—Editorial Budget for 1944—Organization Activities. Burns, The Physiologic Management of—Williams. Physiologic Problems of—Elman C Cancer of the Colon and Rectum, Present Status of—Sugarbaker Patients, Control Factors in the Surgery of—Sugarbaker Cardiac Disorders in an Army General Hospital—King. I Case Reports of the Barnes Hospital—Wood and Moore 10, 34, 54, 75, 97, 119, 166, 184, 206, 221, 2	68 158 68 158 7 128 90 205 1 1 49 112 197

Committee on Postwar Planning—Neal	116	Deficit of Physicians	
to Study Health Needs—Editorial	228	Fifth War Bond Drive	133
Insertion of the Caudal Needle—Clinical Notes	61	Hospital Statistics	105
Control Factors in the Surgery of Cancer Patients—Sugar- baker		Lessons From the Allocation of Interns	213
Correspondence—		Medical Service	248
M. L. Gentry, M.D., Enters Service—State Board of Health	195	Missouri's Prepayment Medical Plan Soon to Be Launched	248
Infantile Paralysis—Davis	190	Launched Points Out What to Expect Under Bureaucratic Medicine 2	213
Venereal Disease Control—Moore	177	Postwar Planning Committee	42
Cowdry, E. V.—Barnard Free Skin and Cancer Hospital Research. Report for 1943		Prepayment Medical and Surgical Care Plan	128
Research. Report for 1945	101	Social Hygiene Legislation	44
D		What Kind of Medical Officers Do the Armed Services Want?	192
Deakin, Rogers-Committee on Control of Venereal Dis-		87th Annual Session, Missouri State Medical Association	05
eases—Organization Activities Death Rates in 1943—Editorial	194	—Organization Activities Elman, Robert—Physiologic Problems of Burns. Experimental Diabetes—Black	85
Deaths—		Experimental Diabetes—Black	231
Appleberry, Reuben	230 214	F	
Bennett, Floyd William, Jr	65	Financial Statement Organization Activities	00
Butler, Fred E. Casey, Elmer B. M.	194	Financial Statement—Organization Activities Fifth War Bond Drive—Editorial	133
Cook, Fountain Lee	177	Flannery, Lt. Col. M. G.—Sulfonamides. Use of, in the	
Damron, Oscar H. Dean, Lee Wallace	84	ArmyFunds for Relocation of Physicians—Editorial	21
Douglass, William H. Enloe, Cortez F.	176		
Findley, Eldon Marshall	22	G	
Fulbright, Charles H. Grace, Haynie M.		Gastric and Duodenal Lesions—Williams	202
Hall, William Antoine	194	Gentry, M. L., M.D Enters Service. Correspondence Glassberg, B. Y.—Underlying Principles in the Dietary	195
Hamel, Albert H. Hartmann, Jacob A.	176	Management of Diabetes	233
Hays, William H. Hempelmann, Theodore Carl	176	Guyot, J. DeVoine, and Ossman, J. A.—Acute Cor Pul-	
Hibbard, Sherman Blaine	230	monale Complicating Tularemia	131
Hoge, Moses W. Holley, Albert E.	194	H	
Humphreys Joseph Harrison	229	Hematuria, Its Diagnosis and Treatment—Rose	150
Jennings, Dwight L. Johnston, Elza Lee	230 84	Hernia in Infancy, Diaphragmatic. Report of a Success-	
Keller, Jule Harrison	84	fully Operated Case—Probstein and Diamond Hospital Statistics—Editorials	95 105
LaRue, Frank Longstreth, Wallace I. McGuire, Morris Spencer	22	•	
McGuire, Morris Spencer McHaffie, Charles Henry	230	I	
McIntyre, William Kress	194	Incidentally23,	45
McNeil, Charles A. Martin, Edward W.	177	Infantile Paralysis—Correspondence Irwig, Fred—Use of Slow-Acting Insulin.	196 234
May, Henry Allen	176		
Milne, Lindsay Stephen Newman, Ross	214	J	
Niedringhaus, Ralph Edgar Owens, James F.	65	Jones, Lloyd R.—Poliomyelitis	69
Redman, Spence	65	к .	
Ritter, Caleb A. Roberts, J. F.			
Robertson, John T. Rooks, Ola Raymond	22	Keys, J. Albert—Treatment of Infantile Paralysis Keyes, E. L.—Diagnostic Features of the First Pain of	70
Rumsey, Fredk. Crosby	84	Acute Appendicitis King. Col. John T.—Cardiac Disorders in an Army General	30
Sale, Onal A	84	Hospital	197
Schudde, Otto Nicholas	84	-Neurocirculatory Asthenia	215
Shoemaker, William Alfred Simpson, James Y.	84 177	Especially Age	200
Smith, David E	177	L	
Stockwell, Benj. Early Stratton, Charles D.	176		
Sullivan, Francis Hall Tatum, Harry Erskine	229	Lessons From the Allocation of Interns—Editorials Lohr, Curtis H.—Address of the President-Elect	110
Thie, Otto William	194		
Trigg, Joseph M. Wilhelm, Francis E.	65 230	M	
Youngman, Jacob Andrew	229	McAlester, A. W., Jr.—Address of the President	109
Deficit of Physicians—Editorial	54	McCaughan, J. M., and Purcell, H. K.—Valvular Chole- cystogastrostomy. Experimental Observations	3
Diabetes, Experimental—Black		Medical Survey Program—Miscellany Minutes of the 87th Annual Session—Society Proceedings	46
Diagnostic Features of the First Pain of Acute Appendi-		Miscellany—	133
citis—Keyes Diamond, J., and Probstein, J. G.—Diaphragmatic Hernia	30	American Medical Association Council on Medical Service and Public Relations	23
in intancy. Report of a Successfully Operated Case	95	Annual Clinical Conference Inaugurated by Chicago	
Diaphragmatic Hernia in Infancy. Report of a Successfully Operated Case—Probstein and Diamond	95	Medical Society Medical Survey Program	46 46
		Missouri Chapter of American Trudeau Society—Editorial	213
E		State Medical Association, 87th Annual Session—Organization Activities85,	133
Editorials—	40	Missouri's Prepayment Medical Plan Soon to Be Launched —Editorial	
A Challenge Annual Assessment	21	Monahan, E. P.—Unusual Case of Arsenical Dermatitis	54
Conference of Secretaries and Editors	21	Moore, Robert A., and Wood, W. Barry—Case Reports of the Barnes Hospital.10, 34, 54, 97, 119, 166, 184, 206, 221,	239
Society Session, The	192		
Session, The	133	N	
Arthur S. Bristow Committee to Study Health Needs	128	Neal, M. Pinson—Committee on Postwar Planning Necrotic Uterine Fibromyoma Complicating Pregnancy.	116
Death Rates in 1943	83	Report of a Case—Schneider	164

200	
Neilson, Arthur W.—Syphilis. Five-Day and Other Treatments	Lafayette County Medical Society .67, 196 Mercer County Medical Society .230 Minutes of the 87th Annual Session .133
News Notes22, 44, 64, 83, 106, 129, 133, 176, 193, 213, 229, 248	Nodaway-Atchison-Gentry-Worth Counties Medical Society
0	Randolph-Monroe County Medical Society
Organization Activities— Budget for 1944	Medical Society
Committee on Control of Venereal Diseases	Scott County Medical Society
Eighty-seventh Annual Session, Missouri State Medical Association	Vernon Cedar County Medical Society
Financial Statement for 1943	Special Problems of Poor Surgical Risks, Especially Age —Kountz
sion	Stewart, James—State Board of Health—Premarital Law 23 Study of Nephrosis—Graham 91
Original Pressure Point Technic for Insertion of the Caudal Needle—Clinical Notes—Compton	Sugarbaker, Everett D.—Control Factors in the Surgery of Cancer Patients
Ossman, J. A., and Guyot, J. DeVoine—Acute Cor Pulmonale Complicating Tularemia	—Present Status of Cancer of the Colon and Rectum 49 Sulfonamides in the Army, Use of—Van Ravenswaay 29
p	Mode of Elimination—Barnett 25 Use in Venereal Diseases—Sewell 27
	Use of in the Army—Flannery
Physiologic Management of Burns—Williams	Public Health Aspects—Bredeck 7
Poliomyelitis—Jones 69 —Walthall 73	T
Saunders' Theory on the Etiology of—Zahorsky. 162 Postwar Planning Committee—Editorial. 42	Treatment of Infantile Paralysis—Key 70
—Neal	U
—Schneider	Uhlmann, Robert—Some Remarks on Coronary Sclerosis 218 Underlying Principles in the Dietary Management of
Prepayment Medical and Surgical Care Plan—Editorial 128 Missouri's, Soon to Be Launched—Editorial 213	Diabetes—Glassberg
Present Status of Cancer of the Colon and Rectum— Sugarbaker	—Monahan
in Infancy. Report of a Successfully Operated Case 95	of Slow-Acting Insulin—Irwig
Purcell, H. K., and McCaughan, J. M.—Valvular Cholecystogastrostomy. Experimental Observations	v
Physiologic Problems of Burns—Elman	Valvular Cholecystogastrostomy. Experimental Observa-
R	tions—McCaughan and Purcell
Random Observations. By a Roving Reporter	the Army 29 Venereal Disease Control—Correspondence 195 in Missouri—Wolcott 179
Rose, D. K.—Hematuria. Its Diagnosis and Treatment 159	Vohs, Carl F.—Conference on Medical Service—Organization Activities
S	
Saunders' Theory on the Etiology of Poliomyelitis— Zahorsky	W
Schneider, Nicholas A.—Necrotic Uterine Fibromyoma Complicating Pregnancy. Report of a Case	Walthall, Damon—Poliomyelitis
Sclerosis, Some Remarks on Coronary—Uhlmann	Want?—Editorial 192 Williams, D. A.—Gastric and Duodenal Lesions 202 Vincent T.—The Physiologic Management of Burns 205
Smallpox in Missouri—Editorial 43	Wolcott, R. R.—Venereal Disease Control in Missouri
Social Hygiene Legislation—Editorial	Wood, W. Barry, and Moore, Robert A.—Case Reports of the Barnes Hospital
Barry-Lawrence-Stone County Medical Society67, 178 Buchanan County Medical Society47	
Cass County Medical Society	z
Dallas-Hickory-Polk County Medical Society	Zahorsky, John—Saunders' Theory on the Etiology of
Howell-Oregon-Texas County Medical Society 107	Poliomyelitis

WARTIME CONDITIONS FORCE CHANGE OF MEETING PLACE FOR 1945 SESSION

Because of conditions brought about by the war the necessary facilities will not be available in New York City for the 1945 annual session of the American Medical Association, scheduled for June 11 to 15, and thus it will have to be held in some other city where adequate facilities will be available, it is reported in the November 11 issue of *The Journal* of the Association. The announcement says:

"The House of Delegates of the American Medical Association at the annual session held in 1942 selected New York City as the place of meeting for the 1945 annual session. Certain preliminary arrangements were completed, but investigations recently made in New York clearly indicate that the necessary facilities will not be available in that city in 1945 because of conditions created by the war emergency. It is with regret that it is necessary to make the announcement that the

annual session scheduled for New York, June 11 to 15, 1945, will have to be held in some other city where adequate facilities will be available. Under the direction of the Board of Trustees necessary investigations are now in progress and definite announcement as to the place of meeting for 1945 will be made through the columns of *The Journal* at the earliest possible time."

PENICILLIN FAILURES

"Penicillin failures," Arthur L. Bloomfield, M.D.; William M. M. Kirby, M.D., and Charles D. Armstrong, M.D., San Francisco, say in *The Journal of the American Medical Association* for November 11, "for the most part fall into the following groups: cases in which the treatment is too brief or the daily dose too small; cases in which penicillin fails unless surgical drainage is also done; overwhelming infection, even with a sensitive strain (of the invading organism)."





NATIONWIDE ADOPTION OF MASS X-RAY CHEST SURVEYS IS FORSEEN

Gratifying results of extensive surveys to date, recommends the method as a postwar routine for tuberculosis control

One of the keynotes of the recent meeting of the National Tuberculosis Association stressed the importance not only of stepping up the present program of mass x-ray chest surveys, but also of planning for its greatly extended use in the postwar years—when a threatened increase in the tuberculosis rate will challenge all workers in this field.

Branding tuberculosis as a war and postwar menace, Dr. Kendall Emerson, Managing Director of the National Tuberculosis Association recently stated:

"Health and preventive medicine command major attention during a period of war. Interest centers both in the current effect of war on the health of armed forces and civilians, and in the post-war results to be anticipated from the strain of prolonged conflict. The ill effect of both on the incidence of tuberculosis is especially to be feared. The strain of overwork, the accelerated tempo of life under war conditions, perhaps the indiscretions in the mode of living among those with unwonted money to spend, these and other causes paint dark shadows in the picture of the future.

"Meanwhile we are doing far too little in the way of preparation to forestall these post-war threats. More beds for the tuberculous will be sorely needed if we are to meet the emergency. Construction requires time. As yet we are scarcely at the blue print stage.

"Increase in our equipment for mass roentgenography is essential. Industry, both management and labor, are becoming keenly aware of this need. The importance of discovering the minimal case is being popularized. This puts a new obligation on practicing physicians, and especially on the teaching of medical students. The diagnostic alertness of the entire profession will be put under heavy strain if we are to do our part. Through coordination of medicine, public health, business, and an informed public the post-war menace of a rise in tuberculosis mortality may this time be averted. Nothing less will suffice."

Today, in all sections of the country, G-E Photo-Roentgen units are extending x-ray chest surveys into the smallest communities and crossroads, in order that every man, woman, and child in a given survey area may avail himself of this great humanitarian service.

The role of the roentgenologist in this form of tuberculosis control is becoming increasingly important. His guidance and help are sought by local anti-tuberculosis organizations, for planning and conducting the survey, and the reviewing of the films. Thus, as a public-spirited citizen, the roentgenologist may enlist in a community project which he may also be called upon to serve in his professional capacity.

GENERAL ELECTRIC X-RAY CORPORATION

2012 JACKSON BLVD.

CHICAGO (12), ILL., U. S. A.

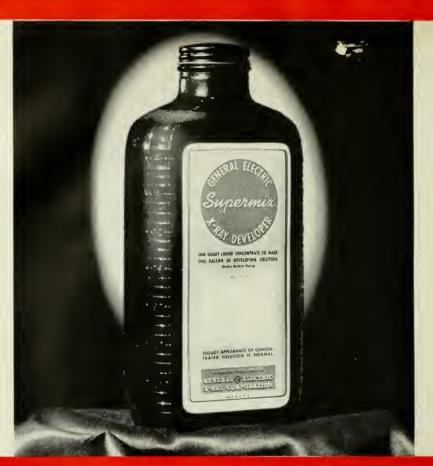


Today's Best Buy - U.S. War Bonds





SUPERMIX SERVES YOU WELL



To x-ray film-processing it brings five outstanding advantages which are unobtainable with conventional powdered x-ray film-processing chemicals.

MORE SPEED. Supermix develops films in 3 minutes and clears them in 1. With it you can nearly double film output.

SUPERIOR FILM QUALITY. Supermix brings out in films the utmost contrast, density, and detail visibility. Diagnoses are made more quickly and surely.

CONSTANT DEVELOPING TIME. Chemical exhaustion of Supermix developing solution is compensated by adding Supermix Refresher periodically instead of by lengthening the developing time. Supermix saves the work of continual recalculation.

LESS WORK. Being 100% liquid, Supermix saves time in mixing new solutions. The concentrates are simply poured into the tanks and water of the proper temperature added.

LOWER COST. Supermix processes so much more film than conventional powders that despite

its slightly higher initial cost it is at least 15% more economical to use. Also, revitalization of the Developer with Refresher makes the Developer last up to four times longer, an additional saving.

Put efficient, economical Supermix chemicals to work in your x-ray film-processing room. Order today from your nearby G-E Branch Office.

	Developer	Freshener	Fixer
To make 1 gal.	\$1.00	\$1.15	\$1.00
To make 3 gals	. 2.75		2.70
To make 5 gals.	4.50	5.25	4.25

Quantity Prices on Request

Prices f.o.b. U.S. Branches. Prices will be increased by the amount of such sales (or use) tax as may be applicable

GENERAL ELECTRIC X-RAY CORPORATION

2012 JACKSON BLVD.

CHICAGO (12), ILL., U. S. A.

Today's Best Buy - U.S. War Bonds







